

Wheel Gulch Rehabilitation Site: Trinity River Mile 75.8 to 76.4

Environmental Assessment/Initial Study

To tier to:

The Trinity River Mainstem Fishery Restoration Environmental Impact Statement

And

Channel Rehabilitation and Sediment Management for Remaining
Phase 1 and Phase 2 Sites Master Environmental Impact Report

(State Clearinghouse # 2009032110)

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California Lead Agency for CEQA
North Coast Regional Water Quality Control Board

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Acronyms and Abbreviations

AEAM	Adaptive Environmental Assessment and Management
afa	acre feet annually
APE	Area of Potential Effect
Basin Plan	Water Quality Control Plan for the North Coast Region, as amended June 28, 2001
BFE	base flood elevation
BLM	U.S. Bureau of Land Management
BMP	best management practice
CAAQS	California Ambient Air Quality Standards
CalEPA	California Environmental Protection Agency
Caltrans	California Department of Transportation
CARB	California Air Resources Board
CCAA	California Clean Air Act
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQ	President's Council on Environmental Quality
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHP	California Highway Patrol
County	Trinity County
CVP	Central Valley Project
CVPIA	Central Valley Project Improvement Act
CWA	Clean Water Act
dB	logarithmic decibel
dBA	"A-weighted" decibel scale
DEIS	Draft Environmental Impact Statement
DEIR	Draft Environmental Impact Report
DOI	U.S. Department of Interior
DWR	California Department of Water Resources
EA	Environmental Assessment
EIR	Environmental Impact Report
EIS	Environmental Impact Statement
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Maps
fps	feet per second

GHG	greenhouse gas
GIS	geographic information system
HAP	Hazardous Air Pollutant
HEC-RAS	Hydraulic Engineering Center River Analysis System
HPTP	Historic Property Treatment Plan
HVT	Hoopa Valley Tribe
IAP	Integrated Assessment Plan
IS	Initial Study
KMP	Klamath Mountains Province
KOP	key observation point
L _{dn}	day-night average sound level
LRMP	Land and Resource Management Plan
LWD	large woody debris
MBTA	Migratory Bird Treaty Act
MFF	maximum fishery flows
MMRP	Mitigation Monitoring and Reporting Program
msl	mean sea level
NAAQS	National Ambient Air Quality Standards
NAHC	Native American Heritage Commission
NCAB	North Coast Air Basin
NCUAQMD	North Coast Unified Air Quality Management District
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOP	Notice of Preparation
NPDES	National Pollutant Discharge Elimination System
NRA	National Recreation Area
NRHP	National Register of Historic Places
OHWM	ordinary high water mark
OPR	Governor's Office of Planning and Research
ORV	Outstandingly Remarkable Value
PA	Programmatic Agreement
PM _{2.5}	particulate matter less than 2.5 microns in aerodynamic diameter
PM ₁₀	particulate matter less than 10 microns in aerodynamic diameter
PRC	Public Resources Code
Q	flow rate (typically expressed in cfs)
Q _s	summer base flow
Q _{1.5}	1.5-year return interval design flow
Q ₁₀₀	100-year flood flow

Reclamation	U.S. Bureau of Reclamation
Regional Water Board	North Coast Regional Water Quality Control Board
RM	river mile
RMP	Resource Management Plan
ROD	Record of Decision
SHPO	California State Historic Preservation Office
SLC	California State Lands Commission
SO ₂	sulfur dioxide
SR	State Route
STAR	Southern Trinity Area Rescue
STNF	Shasta-Trinity National Forest
SWPPP	Storm Water Pollution Prevention Plan
TAC	Toxic Air Contaminant
TCRCD	Trinity County Resource Conservation District
TMC	Trinity Management Council
TMDL	Total Maximum Daily Load
TRD	Trinity River Division
TRFES	Trinity River Flow Evaluation Study
TRRP	Trinity River Restoration Program
TRSSH	Trinity River Salmon and Steelhead Hatchery
UCC	Upper Conner Creek
UJC	Upper Junction City
USACE	U.S. Army Corps of Engineers
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VAU	visual assessment unit
VFD	volunteer fire department
WSE	water-surface elevation
WHR	Wildlife Habitat Relationships
WSRA	Wild and Scenic Rivers Act
YT	Yurok Tribe

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Chapter 1

1 INTRODUCTION AND BACKGROUND

1.1 Overview

The United States Department of Interior (USDI) Bureau of Reclamation (Reclamation) proposes to conduct mechanical channel rehabilitation activities on the mainstem Trinity River downstream of Lewiston Dam at the Wheel Gulch channel rehabilitation site. Project work would be part of the ongoing Trinity River Restoration Program's work to restore the anadromous fishery of the Trinity River. The proposed river channel rehabilitation activities would recreate complex salmon and steelhead habitat, enhance natural river processes for the benefit of wildlife, and provide conditions suitable for reestablishing native riparian vegetation.

The fundamental purpose of the Trinity River Restoration Program (TRRP) is to restore historic river processes to the river via implementation of the 2000 Record of Decision (ROD) for the Trinity River Mainstem Fishery Restoration Final Environmental Impact Statement/Environmental Impact Report (Trinity River FEIS/EIR). It is the intent of the TRRP to recreate a properly functioning river, albeit on a smaller scale, in order to increase naturally spawning anadromous fish populations to levels which existed prior to construction of the Lewiston and Trinity Dams. The target reach for Trinity River restoration is the approximately 40-mile length of river downstream of Lewiston dam to the confluence of the North Fork Trinity. In this reach, the ROD outlined six integral components for execution:

- Implementation of a variable annual flow regime according to recommendations provided in the Trinity River Flow Evaluation Report (TRFER 1999),
- Mechanical channel rehabilitation,
- Fine and coarse sediment management,
- Watershed restoration,
- Infrastructure improvement, and
- Adaptive environmental assessment and management.

In general, the TRRP approach to channel rehabilitation is to selectively remove terraces and riparian berms (i.e., berms that are anchored with woody vegetation and consolidated sand deposits) that developed after the Lewiston and Trinity Dams were completed and historic peak scouring flows were lost. Along with berm removal, the approach involves physical alteration of floodplains to inundate more frequently, placement of large wood, and removal of riparian vegetation at strategic locations to promote the alluvial processes necessary for the restoration and maintenance of complex riverine habitats.

This environmental review document was prepared by Reclamation, in coordination with the USDI Bureau of Land Management (BLM), a federal land manager at the Wheel Gulch rehabilitation site and federal co-lead for the project. These federal agencies worked with the North Coast Regional Water Quality Control Board (Regional Water Board), as the California state lead agency, to analyze the potential impacts of the proposed activities according to National Environmental Policy Act

(NEPA) and California Environmental Quality Act (CEQA) guidelines. The results of these analyses are recorded in this project Environmental Assessment/Initial Study (EA/IS).

The EA portion of the Wheel Gulch document tiers from the 2000 Trinity River FEIS/EIR. However, Trinity County, the CEQA lead agency for the Trinity River FEIS/EIR chose not to “certify” the EIR portion of the document. Therefore, the EIR portion of that document was not available for the CEQA portion of the Wheel Gulch document, or other earlier TRRP CEQA documents to “tier” from. Consequently, four joint EA/EIRs were completed to analyze TRRP channel rehabilitation projects between 2004 and 2008¹. Based upon the similarity of these projects and their environmental impacts, and agreement that future TRRP projects would have similar impacts, a separate programmatic CEQA document, the Master Environmental Impact Report for channel rehabilitation and sediment management activities for the Remaining Phase 1 and Phase 2 sites (Trinity River Master EIR) was developed. The Regional Water Board acted as lead agency for the Trinity River Master EIR and site specific EA/EIR (State Clearinghouse number 2008032110). The Regional Water Board certified these environmental documents on August 25, 2009. Phase 2 sites, like Wheel Gulch, are now eligible for enrollment and CEQA coverage following completion of any subsequent project-specific environmental analysis required to supplement the programmatic level review contained in the Trinity River Master EIR. Under California Code of Regulations, title 14, section 15177, after a Master EIR has been prepared and certified, subsequent projects which the lead agency determines as being within the scope of the Master EIR will be subject to only limited environmental review.

The preparation of a new environmental document and new written findings will not be required if, based on a review of the initial study prepared for the subsequent project, the lead agency determines, on the basis of written findings, that no additional significant environmental effect will result from the proposal, no new additional mitigation measures or alternatives are required, and that the project is within the scope of the Master EIR. Whether a subsequent project is within the scope of the Master EIR is a question of fact to be determined by the lead agency based upon a review of the initial study to determine whether there are additional significant effects or new additional mitigation measures or alternatives required for the subsequent project that are not already discussed in the Master EIR. This Wheel Gulch EA/IS contains an initial study and site-specific project description and other information required to apply for enrollment under General Permit R1-2010-0028 for Trinity River channel rehabilitation activities which the Regional Water Board will consider in making its determination and approval decision.

The Trinity River Master EIR (Regional Water Board and U.S. Bureau of Reclamation 2009) is divided into two parts. Part 1 evaluates the environmental impacts of the proposed channel rehabilitation and sediment management activities along the river and at the Remaining Phase 1 and Phase 2 sites. From a programmatic perspective, it provides a discussion of the existing conditions, environmental impacts, and mitigation measures required to comply with CEQA (California Public Resources Code [PRC], Section 21000 et seq.). In addition to addressing direct and indirect impacts associated with the Proposed Project and alternatives, the Trinity River Master EIR addresses cumulative and growth-inducing impacts that could be associated with activities at the Remaining Phase 1 and Phase 2 sites.

¹ Hocker Flat (Reclamation and California Department of Water Resources 2004), the Canyon Creek Suite (Reclamation and the Regional Board 2006), Indian Creek (Reclamation and Trinity County 2007), and Lewiston-Dark Gulch (Reclamation and the Trinity County Resource Conservation District 2008).

Part 2 of the Trinity River Master EIR is an EA/Draft EIR. The EA/Draft EIR is an integrated NEPA/CEQA document that evaluates the environmental impacts of the proposed channel rehabilitation activities at a project-specific level for the Remaining Phase 1 sites. Those sites had sufficiently developed mechanical channel rehabilitation plans to allow for detailed analysis. Activities at 23 other planned restoration locations, called the “Phase 2” sites, were included in the Trinity River Master EIR but sufficient information was not available for detailed analysis at that time; that is, they were included in the document as conceptual and thus were analyzed at a programmatic level. A programmatic description of the Wheel Gulch site was included in the Master EIR analysis under the description of Phase 2 site activities.

This EA/IS for the Wheel Gulch channel rehabilitation project provides site-specific details for environmental impact analyses and has been prepared to comply with NEPA (42 United States Code [USC], Section 4321 et seq.) and CEQA (California PRC, Section 21000 et seq.). The Trinity River Master EIR meets the elements required for a Program EIR pursuant to California Code of Regulations, Title 14 (Natural Resources), Section 15168. The Trinity River Master EIR provides programmatic CEQA level review, as the Trinity River FEIS/EIR serves under NEPA, from which site-specific projects may tier. Therefore the Wheel Gulch rehabilitation project is considered a subsequent site-specific project that is tiered to the Trinity River Master EIR. This combined NEPA/CEQA document evaluates the environmental impacts of the proposed channel rehabilitation and sediment management activities at the project-specific level for the Wheel Gulch rehabilitation site.

1.2 Regional Setting

The Trinity River originates in the rugged Salmon-Trinity Mountains of northern California in the northeast corner of Trinity County. The Trinity River Basin encompasses the majority of Trinity County and the easternmost portion of Humboldt County (see Figure 1). The mainstem Trinity River flows a total of 170 miles from its headwaters to its confluence with the Klamath River at Weitchpec, on the Yurok Indian Reservation. The Trinity River passes through Trinity County, Humboldt County, the Hoopa Valley Indian Reservation, and the Yurok Indian Reservation. Much of the basin is composed of federal lands managed by the United States Forest Service (USFS), BLM, and, to a lesser extent, Reclamation. Ownership along the Trinity River corridor is a mixture of public, Tribal, and private lands.

The Trinity River flows generally southward until impounded by Trinity Dam and Lewiston Dam. The river drains a watershed of approximately 2,965 square miles; about one-quarter of this area is above Lewiston Dam. From Lewiston Dam, the river flows westward for 112 miles until it enters the Klamath River near the town of Weitchpec, 43.5 miles upstream from the Pacific Ocean. The Klamath River flows northwesterly for approximately 40 miles from its confluence with the Trinity River before entering the Pacific Ocean.

Topography of the Trinity River Basin is predominantly mountainous with a heavily forested basin. Elevations in the watershed range from 8,888 feet above mean sea level (msl) at Sawtooth Mountain in the Trinity Alps to 300 feet above msl at the confluence of the Trinity and Klamath rivers. Land use within the Trinity River Basin is greatly influenced by the large amount of public, Tribal, and private lands, much of which is used for timber production and other natural resource-related uses. Two scenic byways, State Route 299 (SR-299) and SR-3, cross the county. SR-299 is the primary

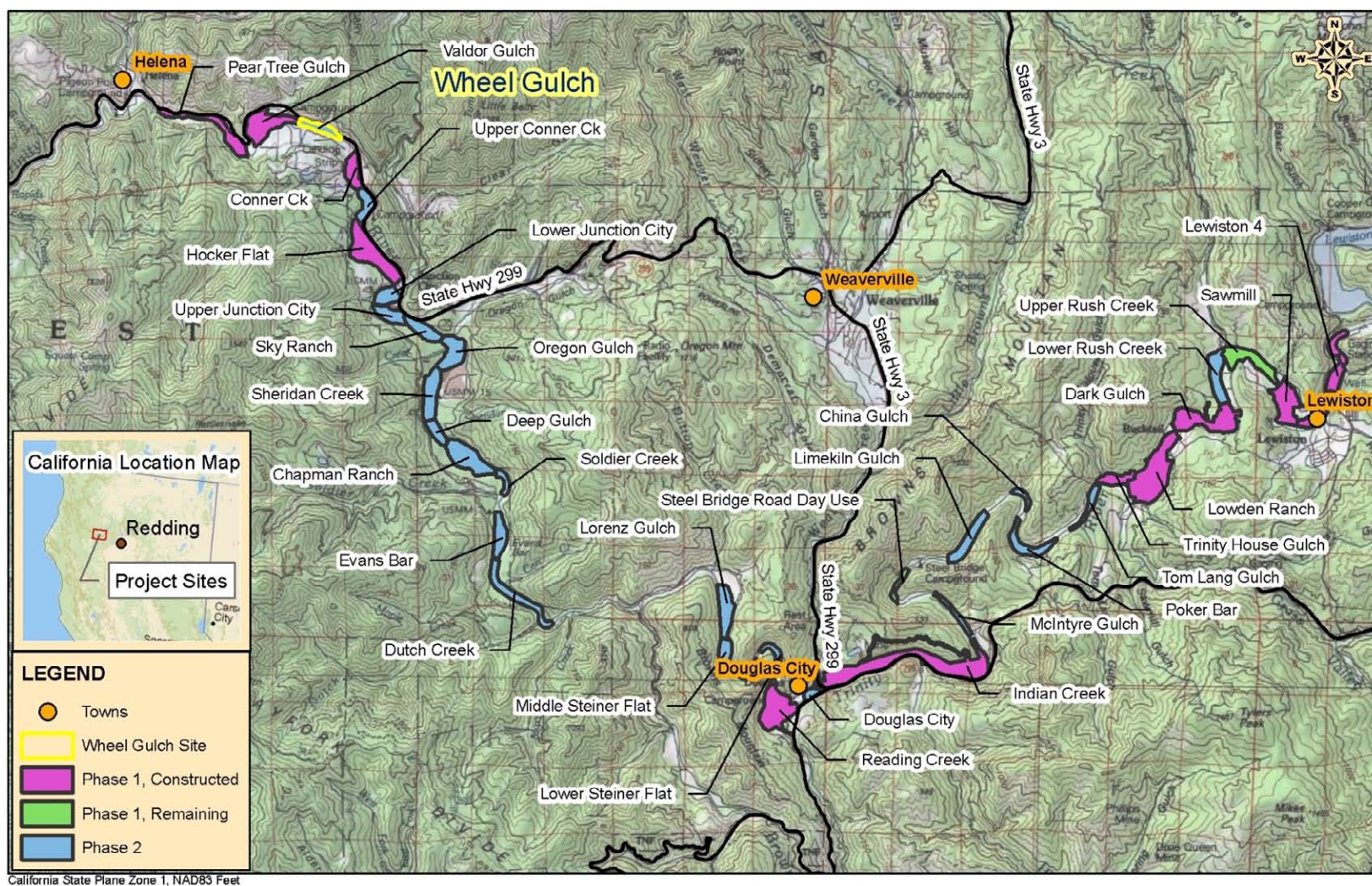
travel corridor through Trinity County, connecting the Central Valley with the coastal communities of Humboldt County. The area's numerous lakes and rivers provide many recreational opportunities, including fishing and boating. Private uses along the Trinity River are generally limited to scattered residential and commercial development.

1.3 Project Location

The general setting for the TRRP is within the 40-mile reach of the mainstem Trinity River between Lewiston Dam and the confluence of the North Fork Trinity. The Wheel Gulch rehabilitation site is near the downstream end of the overall project (Figure 1). Located between river mile (RM) 75.8 and 76.4, this site is just upstream of the Valdor Gulch site, part of the Canyon Creek Suite of sites, constructed in 2006 (Reclamation and Regional Water Board 2006). The Trinity River Master EIR includes figures depicting the location of all of the rehabilitation projects proposed by the TRRP on the Trinity River.

The boundaries established for the site have changed throughout the planning process, based on detailed site evaluations, with the most current boundary shown on Figure 2. An existing side channel has periodically connected with the river during high flows at RM 75.9 and is evident on historical photos. This site also encompasses a sediment retention basin, which the California Department of Transportation (Caltrans) constructed between SR-299 and the Trinity River, to remove Wheel Gulch sediment which periodically blocks the drainage. TRRP staff, with interdisciplinary review from the Trinity Management Council (TMC) technical staff, developed the site boundaries to incorporate the rehabilitation activities that were considered. For the Wheel Gulch rehabilitation site these activities include removal of encroaching riparian vegetation, rehabilitation of floodplain and in-channel alluvial features (e.g., an island, side-channel, and large wood habitat structures), construction of off-channel habitat for aquatic- and riparian-dependent species, and rehabilitation of upland habitat.

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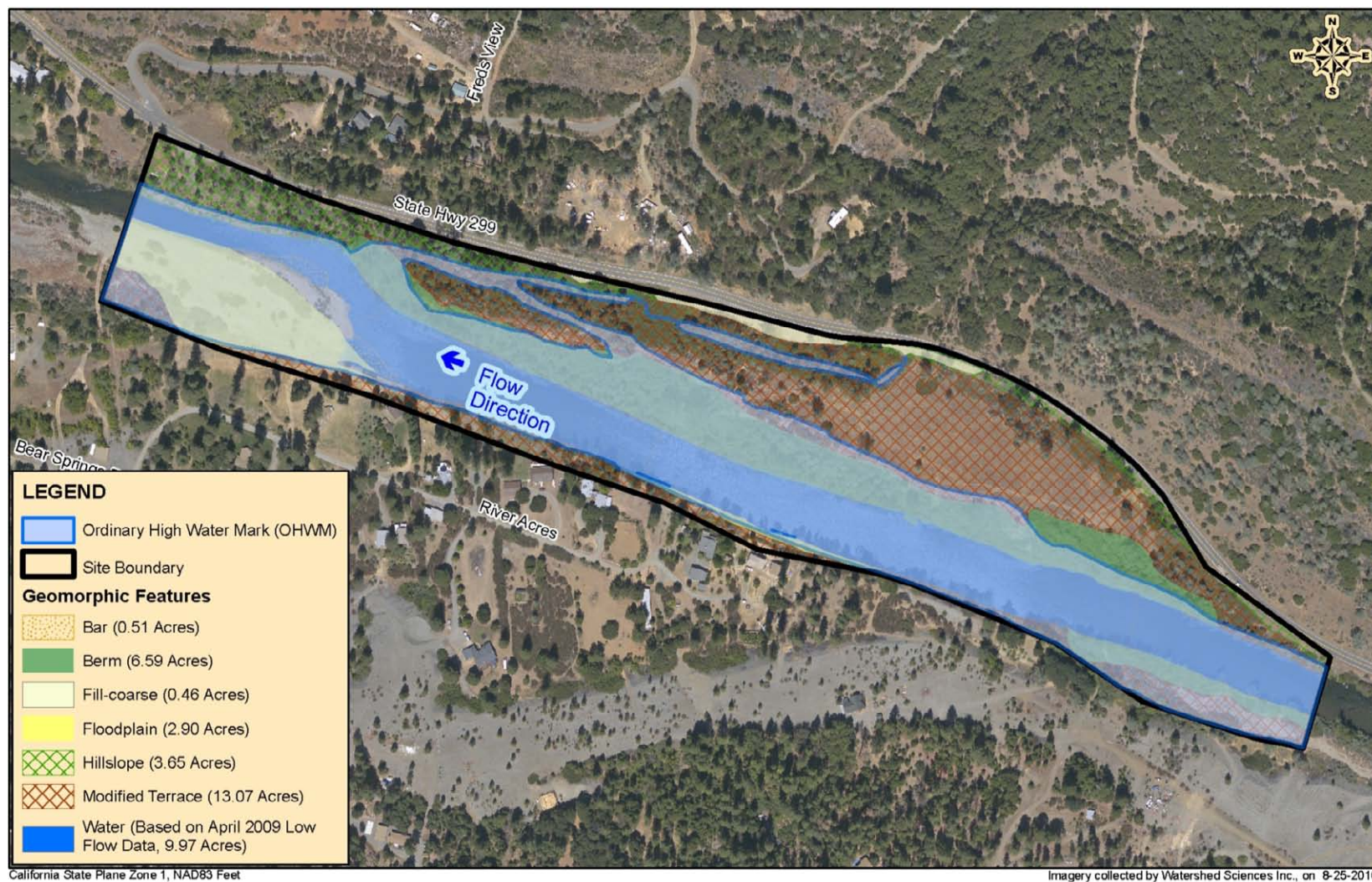
Figure 1. Wheel Gulch Project Vicinity and Relationship to Other TRRP Sites.

1.4 Project History and Background

Completion of Trinity Dam and Lewiston Dam in 1964 blocked anadromous fish access to habitat upstream of Lewiston Dam restricting them to habitat below the dam. The location of the Trinity River relative to other components of the Central Valley Project (CVP) is shown on Figure 1-1 in the Trinity River Master EIR. Trans-basin diversions from Lewiston Lake to the Sacramento River Basin altered the hydrologic regime of the Trinity River, diminishing annual flows by up to 90 percent. Consequences of diminished flows included encroachment of riparian vegetation, establishment of riparian berms, and fossilization of point bars at various locations along the river, as far downstream as the North Fork Trinity River. These geomorphic changes reduced the diversity of riparian age classes and riparian vegetation species, impaired floodplain access, and adversely affected fish habitat.

In 1981, in response to declines in salmon and steelhead populations, the Secretary of the Interior directed the U.S. Fish and Wildlife Service (USFWS) to initiate a 12-year flow study to determine the effectiveness of flow restoration and other mitigation measures for impacts of the Trinity River Division (TRD) of the CVP. Then, in 1984, Congress enacted the Trinity River Fish and Wildlife Program to further promote and support management and fishery restoration actions in the Trinity River Basin. Under this program, nine pilot bank rehabilitation projects between Lewiston Dam and the North Fork Trinity River were implemented between 1991 and 1993, among other actions. In 1992, Congress enacted the Central Valley Project Improvement Act (CVPIA). One purpose of the CVPIA (Section 3406) was to protect, restore, and enhance fish, wildlife, and associated habitats in the Trinity River Basin. The act also directed the Secretary of the Interior to finish the 12-year Trinity River Flow Evaluation Study (TRFES) and to develop recommendations “regarding permanent instream fishery flow requirements, TRD operating criteria, and procedures for the restoration and maintenance of the Trinity River fishery.” The Trinity River Flow Evaluation Final Report was ultimately published in 1999 by the USFWS and the HVT, providing a framework for restoration activities below Lewiston Dam as well as the basis for the preferred alternative in the concurrent programmatic environmental analysis.

In 1994, the USFWS as the NEPA lead agency and Trinity County as the CEQA lead agency began the public process for developing the Trinity River Mainstem Fishery Restoration Environmental Impact Statement/Environmental Impact Report (EIS/EIR). The Record of Decision (ROD) for the Trinity River FEIS/EIR (December 19, 2000; USDI 2000) directed USDI agencies to implement the Flow Evaluation Alternative, which was identified as the Preferred Alternative in the Trinity River FEIS/EIR. However, the EIR was not certified by Trinity County. The ROD set forth prescribed Trinity River flows for five water-year types: extremely wet (815,200 acre-feet annually [afa]), wet (701,000 afa), normal (646,900 afa), dry (452,600 afa), and critically dry (368,600 afa). The flows prescribed by the 2000 ROD are deemed to constitute the “existing [hydrological] environment” for CEQA purposes, and are considered the basis for the environmental analysis under both NEPA and CEQA.



 <p>Prepared for the Bureau of Reclamation Trinity River Restoration Program</p>		<p>TRINITY RIVER RESTORATION PROGRAM WHEEL GULCH REHABILITATION SITE ENVIRONMENTAL ASSESSMENT/INITIAL STUDY</p>		 <p>North Wind, Inc. 1425 HIGHAM ST. IDAHO FALLS, ID 83402 WEB: www.northwind-inc.com Phone: (208) 528-8718 FAX: (208) 528-8714</p>

Figure 2. Land Management and Boundaries of Wheel Gulch Rehabilitation Site.

The Trinity River Master EIR (2009) includes a brief chronology summarizing the most pertinent management actions that have occurred relevant to the Trinity River Basin between 1938 and 2008 (Section 1.4.4, page 1-8). Additional details concerning the legislative and management history can be found in the Trinity River FEIS/EIR (U.S. Fish and Wildlife Service et al. 1999) and the EA/Final EIRs for TRRP projects constructed between 2005 and 2008². These documents are on file at the TRRP office in Weaverville, California, available on the TRRP website (www.trrp.net), and at the Weaverville public library. The Trinity River Master EIR (Section 1.4.5 pages 1-10 through 1-15) also contains a summary of the various restoration activities that have been undertaken since the signing of the ROD, as well as brief discussions of other watershed restoration programs and activities occurring within the basin; additional information is available on the TRRP program website³.

The TRRP acts under guidance of the Trinity Management Council (TMC), a collaborative board of natural resource managing agencies, tribes, and local government. TMC member agencies include Reclamation, USFWS, National Marine Fisheries Service (NMFS), USFS, HVT, YT, the California Natural Resources Agency (represented by the California Department of Fish and Game [CDFG], the California Department of Water Resources [DWR]), and Trinity County. Technical experts associated with each of these entities participate in the design and review of the rehabilitation sites.

An integral part of the TRRP is the implementation of an Adaptive Environmental Assessment and Management (AEAM) Program. As described in the Trinity River FEIS/EIR, an AEAM process is important for management of complex physical and biological systems like the Trinity River.

The ROD for the Trinity River FEIS/EIR specified that mechanical channel rehabilitation activities would be implemented on the mainstem Trinity River between Lewiston Dam and the North Fork Trinity River. Conceptually, the overall intent of these activities was to selectively remove fossilized berms (berms that have been anchored by extensive woody vegetation root systems and consolidated sand deposits); revegetate and provide conditions for regrowth/sustenance of native riparian vegetation; and reestablish alternate point bars and complex fish habitat similar in form to those that existed prior to the construction of the TRD.

The Trinity River FEIS/EIR identified 44 potential channel rehabilitation sites and 3 potential side-channel sites for consideration by the TRRP. Site selection was based on identifying locations where the maximum amount of habitat for native anadromous fishes could be initiated through construction projects, and then enhanced or maintained by a combination of river flows plus coarse sediment augmentation. Consequently, the original sites were chosen based largely on the existence of riparian berms and where channel morphology, sediment supply, and high-flow hydraulics would encourage a dynamic alluvial channel.

1.5 Purpose and Need

NEPA regulations require that an EA briefly specify the need that the agency is responding to in proposing the various alternatives, including the proposed action (40 Code of Federal Regulations [CFR], Section 1508.9(a)). Similarly, CEQA requires that an IS include a statement of the objectives

² Hocker Flat (Reclamation and California Department of Water Resources 2004), the Canyon Creek Suite (Reclamation and the Regional Board 2006), Indian Creek (Reclamation and Trinity County 2007), and Lewiston-Dark Gulch (Reclamation and the Trinity County Resource Conservation District 2008).

³ <http://www.trrp.net/RestorationProgram/index.htm>

to be achieved by a proposed project (CEQA Guidelines, Section 15124(b)). The objectives are discussed in Chapter 2 of this document.

Overall, the purpose of the TRRP is to provide increases in habitat for all life stages of naturally produced anadromous fishes native to the Trinity River in the amounts necessary to reach congressionally mandated goals. The strategy is to initially create more habitat for native anadromous fish, and over time, ensure that habitat complexity and quantity increases as the alluvial processes of the Trinity River are enhanced or restored in a manner that would perpetually maintain fish and wildlife resources (including threatened and endangered species) and the river ecosystem. The Proposed Project would continue to advance the implementation efforts of the TRRP and provides the opportunity to:

- Increase the diversity and amount of habitat for salmonids, particularly habitat suitable for rearing;
- Increase rearing habitat for juvenile salmonids, including coho and chinook salmon and steelhead;
- Ensure that the flows prescribed in the ROD would not increase the likelihood of flood-related impacts to public resources and private property within the project boundaries;
- Increase the structural and biological complexity of habitat for various species of wildlife associated with riparian habitats;
- Increase hydraulic and fluvial geomorphic diversity and complexity; and
- Measure/demonstrate the ecological response to changes in flow regimes, morphological features, and aquatic, riparian, and upland habitats.

The underlying need for the Proposed Project is to restore fish populations to pre-dam levels and restore dependent fisheries, including those held in trust by the federal government for the Hoopa Valley and Yurok tribes. This need results from:

- Requirements in the ROD (U.S. Department of Interior 2000) to restore the Trinity River fishery through a combination of higher releases from Lewiston Dam (up to 11,000 cfs), floodplain infrastructure improvements, channel rehabilitation projects, fine and coarse sediment management, watershed restoration, and an AEAM Program; and
- The expectation that the AEAM Program would continue to incorporate the experience provided through the planning, design, and implementation of the Proposed Action into future restoration and rehabilitation efforts proposed by the TRRP.

1.6 Purpose of This Document

Similar to the Trinity River Master EIR (Regional Water Board and Reclamation 2009), this site-specific EA for the Wheel Gulch rehabilitation site has been prepared to comply with NEPA (42 USC 4321 et seq.) and CEQA (California PRC, Section 21000 et seq.). Both statutes generally require that governmental agencies disclose information about proposed activities that may affect the environment, evaluate the potential environmental impacts of their proposed actions before making formal commitments to implement them, and involve the public in the environmental review process. This combined NEPA/CEQA document evaluates the environmental impacts of the proposed channel rehabilitation activities at the project-specific level for the Wheel Gulch rehabilitation site, recommends mitigation measures to minimize impacts, and is designed to facilitate lawful implementation under all applicable laws.

CEQA allows for preparation of a Master EIR that analyzes a series of related actions that are characterized as one large project or program, such as the channel rehabilitation and sediment management activities proposed by the TRRP. The Trinity River Master EIR meets the elements required for a Program EIR pursuant to California Code of Regulations, Title 14, Section 15168. A Master EIR evaluates at a programmatic level the direct and indirect environmental impacts, cumulative impacts, growth-inducing impacts, and irreversible significant effects on the environment of subsequent specific projects. A project-level EIR evaluates the environmental impacts of a specific project (CEQA Guidelines, Section 15161), focusing primarily on the changes in the environment that would occur because of project implementation and evaluates all phases of a particular project (i.e., planning, construction, and operation). A Master EIR forms the basis for analyzing the effects of subsequent projects (CEQA Guidelines Section 15175, et. seq.), a process known as “tiering.” Tiering, which is recognized under both NEPA and CEQA, refers to the practice of covering general matters in broader scope environmental documents and focusing subsequent documents on the issues germane to the site-specific actions (40 CFR 1508.28). Tiering is appropriate when a sequence of analyses progresses from a broad, conceptual, or planning-level review over a wide area or program to a project-specific and site-specific analysis. Tiering helps the lead agencies focus on issues that are “ripe” for decision, while excluding from consideration issues already decided or not yet ripe (CEQA Guideline Section 15385). The general analysis in the broader document is incorporated by reference into the subsequent documents, meaning that the information in the broader document does not need to be repeated in the subsequent documents.

Because the Trinity River Master EIR provides programmatic level review from which site-specific projects may tier, the project-level analysis in this EA/IS for activities proposed at the Wheel Gulch rehabilitation site is tiered from that document. In addition, the EIS portion of the Trinity River FEIS/EIR functions as a project-level NEPA document for policy decisions associated with managing Trinity River flows and as a programmatic NEPA document providing “first-tier” review of other potential actions, including the Proposed Project. This EA/IS focuses only on the site-specific activities proposed at the Wheel Gulch project site and serves as a joint NEPA/CEQA document for project authorization by both federal and California state regulatory agencies.

1.7 Federal and California Lead Agencies

As stated previously, this document is tiered to and incorporates the information contained in the Trinity River Master EIR by reference in its entirety. As an integrated, multi-purpose document, the Trinity River Master EIR is responsive to the efforts of the lead, responsible, and cooperating agencies to ensure that it addresses applicable laws, policies, and regulations. At the same time, it incorporates the input provided during the scoping process in conjunction with the extensive level of consultation and coordination between the agencies.

Reclamation is responsible for the funding and implementation of the Wheel Gulch rehabilitation activities and is the federal lead agency under NEPA. The BLM, which manages a parcel of land within the upstream end of the project boundary, serves as a co-lead for the project. The Regional Water Board is the California state lead agency under CEQA. The Trinity County Resource Conservation District (TCRCD), in its role as an experienced implementer of restoration actions, collaborator on TRRP revegetation, and past CEQA lead for the Lewiston-Dark Gulch project, is working with the TRRP to ensure that CEQA guidelines are fulfilled.

Trinity River Master EIR Phase 2 sites, like Wheel Gulch, are now eligible for enrollment and CEQA coverage following completion of any subsequent project-specific environmental analysis required to supplement the programmatic level review contained in the Trinity River Master EIR as necessary. Under California Code of Regulations, title 14, section 15177, after a Master EIR has been prepared and certified, subsequent projects which the lead agency determines as being within the scope of the Master EIR will be subject to only limited environmental review.

The preparation of a new environmental document and new written findings will not be required if, based on a review of the initial study prepared for the subsequent project, the lead agency determines, on the basis of written findings, that no additional significant environmental effect will result from the proposal, no new additional mitigation measures or alternatives may be required, and that the project is within the scope of the Master EIR. Whether a subsequent project is within the scope of the Master EIR is a question of fact to be determined by the lead agency based upon a review of the initial study to determine whether there are additional significant effects or new additional mitigation measures or alternatives required for the subsequent project that are not already discussed in the Master EIR. This Wheel Gulch EA/IS contains a site-specific project description and other information required to apply for enrollment under General Permit R1-2010-0028 for Trinity River channel rehabilitation activities which the Regional Water Board will consider in making its determination and approval decision.

1.8 Regulatory Framework

In addition to CEQA and NEPA, the Proposed Project is subject to a variety of federal, state, and local statutes, regulations, policies, and other authorities. The decision to facilitate mechanical channel rehabilitation projects and sediment management activities requires various permits from state agencies. The primary responsible and trustee agencies are U.S. Army Corps of Engineers (USACE), USFWS, NMFS, DWR, CDFG, the Regional Water Board, Caltrans, and Trinity County. Chapter 3 of the Trinity River Master EIR, Regulatory Framework, includes descriptions of the actions required of these agencies and of permits required for the TRRP work on the Trinity River as well as an overview of the principal environmental statutes, not described above, which establish the regulatory setting that would be used to assess the impacts of rehabilitation activities. As necessary, the lead, cooperating, and responsible agencies will use the Trinity River Master EIR document for their permitting and approval processes. Implementation of the Wheel Gulch project, as described in Chapter 2, would generally require compliance with the federal, state, and local permit and approval processes and regulations described in Chapter 3 of the Trinity River Master EIR.

1.9 Scoping and Public Involvement

Since the signing of the ROD and efforts to begin its implementation, numerous public meetings and open houses have been held by TRRP and various lead agencies to gain public input and information at each channel rehabilitation site and programmatically under the Trinity River Master EIR. The Trinity River Master EIR includes a complete description of scoping and public involvement activities that occurred as part of that process (Trinity River Master EIR, section 1.6). The same agencies and organizations that were consulted during the preparation of the Trinity River Master EIR document will also be consulted for the Wheel Gulch rehabilitation site.

The Trinity River Master EIR was developed specifically to identify and mitigate potential significant impacts as defined by CEQA. Accordingly, the same issues that were addressed programmatically in the Trinity River Master EIR are considered germane to the proposed project at Wheel Gulch. These issues were used to develop the descriptions of the resource areas and the associated impact analysis presented in Chapter 3 of this document.

The Wheel Gulch rehabilitation site designs have been under development for several years by California Department of Water Resource engineers in cooperation with design teams at the TRRP. In the fall of 2010, a public scoping meeting was held to present draft Wheel Gulch designs, as well as those of several other TRRP rehabilitation sites, and to receive public input, at the Douglas City School, in Douglas City. No substantive comments were received. In addition, TRRP staff members have been meeting with local groups and landowners from the Junction City area, where the project is located, in order to determine and address their concerns.

The TCRCD will assist the TRRP with public notification and meetings so that interested parties may learn about the project and provide their input. The official public review period for the EA/IS will begin when the document is submitted to the State Clearinghouse in February 2011. This document will be circulated to local, state, and federal agencies and to interested organizations and individuals who may wish to review and comment on the analysis provided in this document. The public scoping period will officially run for 30 days from the time the EA/IS is submitted to the State Clearinghouse. Concurrent with this review period, public notice will be provided to solicit additional comments from the public and interested parties. Public notice will include: advertisement(s) in the local Trinity Journal newspaper, letters mailed to local landowners, and public notice posted at the project site informing the public of the availability of the EA/IS for review.

The TCRCD and Reclamation (represented by members of the TRRP) will hold several public meetings during the review period at which comments (written and oral) will be accepted. Presently, public meetings are scheduled for: 1) 6:00 pm on February 15, at the North Fork Grange Hall (on Dutch Creek Road), in Junction City, and 2) 6:30 pm on February 16th at the Indian Creek Lodge in Douglas City with the local fishing guides association. Additional meetings will be scheduled, as needed. Notice of the time and location for Wheel Gulch project public meetings will be posted on the TRRP's website:

<http://www.trrp.net/implementation/WheelGulch.htm>

or on Reclamation's website: http://www.usbr.gov/mp/nepa/nepa_projdetails.cfm?Project_ID=7238.

All written comments and questions regarding this document that raise issues under NEPA, CEQA, or both, should be addressed to:

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Phone: (530) 623-1800
Fax: (530) 623-5944

Questions concerning proposed public meetings may be addressed to Mr. Gutermuth or to Mr. Alex Cousins at the TCRCD, (530) 623-6004.

Copies of this document will be available for review at the following locations:

Trinity River Restoration Program
United States Department of the Interior
Bureau of Reclamation
1313 South Main Street
Weaverville, California 96093

U.S. Department of Interior
Bureau of Land Management
Redding Field Office
355 Hemsted Drive
Redding, CA 96002

Trinity County Resource Conservation District
#1 Horseshoe Square
Weaverville, California 96093

Trinity County Library, Weaverville Branch
211 Main Street
Weaverville, California 96093

Copies of the Trinity River Master EIR, the December 19, 2000 ROD and Trinity River FEIS/EIR are available for public review at:

Trinity River Restoration Program Office
U.S. Department of the Interior – Bureau of Reclamation
1313 South Main Street
Weaverville, California 96093

Or on the TRRP website: <http://www.trrp.net>.

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Chapter 2

2 PROJECT DESCRIPTION AND ALTERNATIVES DEVELOPMENT

This chapter describes the project objectives and discusses the process used to develop the Proposed Project as analyzed in this document. It also describes the design criteria, design concepts, and site location associated with the Proposed Project. Two alternatives are considered in this document: the No-Project alternative and the Proposed Project. Alternatives considered but not selected for evaluation are also presented. The term Proposed Project rather than Proposed Action is used for consistency; for the purposes of this document, the two terms are synonymous.

2.1 Background

The Trinity River FEIS/EIR identified 44 potential channel rehabilitation sites and three potential side channel sites between Lewiston Dam and the North Fork Trinity River (USFWS et al. 2000). These sites were originally prescribed for rehabilitation in the Trinity River Flow Evaluation Report (USFWS and HVT 1999) and included in the preferred alternative identified in the ROD. The ROD prescribed that rehabilitation efforts at these sites be implemented in phases. Early TRRP planning efforts resulted in the identification of two phases, Phase 1 and Phase 2. Subsequently, during ROD implementation by the TRRP, the originally identified sites were revisited and redefined. The Trinity River Master EIR (Tables 1-1, 1-2, and 1-3) describes the relationship between sites identified in the ROD and sites defined subsequent to the ROD. Ultimately, sites at which rehabilitation activities could be implemented were selected using criteria that identified physical features and processes such as channel morphology, sediment supply, and high-flow hydraulics that would encourage a dynamic alluvial channel. Factors such as property ownership, access to the sites, and engineering and economic feasibility were also considered in the site selection process.

The first of the post-ROD channel rehabilitation projects focused on modifying alluvial features, including berm removal at locations where pronounced fossilized riparian berms developed in response to changes in the flow regime and sediment flux that resulted from construction and operation of the TRD. Although berm removal and reforming alluvial features continue to be emphasized in channel rehabilitation efforts, the restoration of alluvial processes, coupled with the creation of high-value (low velocity and close proximity to vegetation) margin and side-channel habitat, are now emphasized by the TRRP in order to increase habitat for anadromous fish. This approach is consistent with the recognition in the Trinity River FEIS/EIR that the rehabilitation sites exhibit a variety of conditions that require site-specific designs. The Trinity River FEIS/EIR also acknowledged that, in many instances, an entire site would not require treatment to facilitate rehabilitation. This is because strategically treating certain areas is expected to result in fluvial processes that will promote the formation and maintenance of complex fish habitat (e.g., alternating channel bars) in both treated and untreated sections of the river. To meet the project objectives the TRRP has identified 15 discrete activities (see Chapter 2 of the Trinity River Master EIR), most of which have been incorporated into the Proposed Project as described later in this chapter. In addition to these activities, wood (large woody debris – LWD) placement and construction of split flow channels are now added. In previous documents, LWD placement has been included within

sediment management activities and common activities at each site. However, the increasing use of wood to create aquatic habitat and hydraulic complexity (scour) at channel rehabilitation sites, and recommendations for additional wood use at future sites (Cardno Entrix and CH2MHill 2011), require that this important rehabilitation activity be highlighted as a common activity planned at Wheel Gulch and other Phase 2 sites. Similarly, construction of a split the flow channel, which divides Trinity River flow into two branches of similar volume, is proposed; a similar split flow channel was constructed at the Lowden Ranch project in 2010.

2.2 Goals and Objectives

The TRRP has developed a number of programmatic objectives for the channel rehabilitation sites that help frame the alternative development process. These programmatic objectives are intended to be used to identify specific activities that could be implemented at Trinity River locations. Ultimately, the goal of the activities described in the Trinity River Master EIR is to increase the quantity and enhance the quality of suitable rearing habitat for native anadromous salmonids and other native fish species, while reestablishing geomorphic processes required to enhance alluvial features (alternate point bars) in the Trinity River. These objectives were used by the project design team to identify specific activities that could be applied at the Wheel Gulch rehabilitation site. This document focuses on these activities that are intended to restore fluvial processes through the rescaling of the river channel and floodplain for the purpose of creating, restoring, and enhancing the full range of habitats for native anadromous fishes, including salmon and steelhead.

With input from stakeholders, the lead agencies considered a number of objectives in the alternative development process (see Trinity River Master EIR, Section 2.2 for these objectives). For the Wheel Gulch rehabilitation site, the specific in-channel (within the active low water channel) and riverine (within the ordinary high water mark [OHWM], but not contiguous with the active channel) activities proposed are intended to assist in reestablishing fluvial processes and interactions. Conceptually, the objective is to increase the connectivity between Wheel Gulch, the Trinity River and their shared floodplain. The project plans to split the main channel flow by creating a low flow side channel, remove berms, and enhance the existing floodplain through topographical diversity and riparian vegetation establishment. The proposed rehabilitation activities could result in the development of a larger and more complex expanse of river and floodplain habitat. Based on successful TRRP rehabilitation projects constructed over the past 6 years, it is anticipated that fluvial processes will affect a larger area than the defined limits of activity within the Wheel Gulch rehabilitation site. This habitat expansion is expected to increase habitat suitability and availability for salmonids and other native fish and wildlife species at various river flows.

2.3 Alternative Development

The President's Council on Environmental Quality (CEQ) guidelines (Section 1502.14) and CEQA guidelines (Section 15126.6(a)) state that an EIS or EIR shall describe a range of reasonable alternatives to the proposed project that would feasibly attain most of the basic objectives of the project, but would avoid or substantially lessen significant effects in comparison to the proposed project (Section 2.5 later in this chapter provides a brief description of alternatives considered but eliminated from further evaluation). Section 15126.6(c) of the CEQA guidelines states that among the factors which may be taken into account when addressing the feasibility of alternatives are site

availability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and whether the proponent can reasonably acquire, control, or otherwise have access to the alternative site.

The alternative development process for the TRRP considered input from stakeholders, particularly local residents and resource agency personnel; existing engineering data; and social, physical, and biological factors. Consistent with the AEAM Program, the Proposed Project reflects the collective experience of the TRRP and the TMC from the implementation of previous mechanical channel rehabilitation projects (Hocker Flat, Indian Creek, and Sawmill among others). Information derived from the implementation of these projects, coupled with information on the biological and physical responses to these projects, was considered in the alternative development process.

The following criteria were applied to evaluate the ability of the Proposed Project to meet the objectives outlined in section 2.2 of this document. Pursuant to NEPA, the purpose and need (presented in Chapter 1) were also considered in this evaluation.

- Effectiveness – The methods, materials, and performance of previous Trinity River restoration projects (including the original pilot projects constructed in the 1990s and the recent TRRP channel rehabilitation projects) in similar environments (e.g., Hocker Flat, Lewiston-Dark Gulch, and Lowden Ranch rehabilitation sites).
- Implementation – Practical execution, including potential public acceptance issues, permitting issues, and land use issues, was considered. Constructability and the complexity of maintaining the rehabilitation sites over time were also considered.
- Environmental – Benefits and impacts to environmental resources with emphasis on special-status species, including native anadromous salmonids, and humans were considered. The impacts considered included both short-term construction-related impacts and long-term maintenance impacts associated with post-ROD flows. Aquatic habitat, jurisdictional wetlands, accessibility, and consistency with land use planning were considered in the type and location of proposed activities.
- Cost – The relative cost of each alternative, including construction and revegetation costs, was considered. Cost was used to identify alternatives that were significantly out of proportion with other alternatives.

A number of alternatives were initially evaluated in the Trinity River Master EIR using the criteria outlined above; as a result three alternatives were included in that analysis –No-Project alternative, Proposed Project alternative, and Alternative 1. The Proposed Project alternative was determined to most efficiently meet project objectives and was selected as the preferred alternative in the Trinity River Master EIR. Alternative 1 was analyzed in the Trinity River Master EIR in response to input provided by stakeholders, including landowners along the river corridor, and represented a reduction in the size, intensity, and magnitude of rehabilitation activities, particularly those in close proximity to residential or recreational developments. Alternative 1 was expected to reduce significant impacts to various resources, especially to the human environment (e.g., traffic, noise near residential areas, etc.); however, it was not expected to expand Trinity River aquatic habitat complexity and quantity or to enhance natural river processes to the same extent as the Proposed Project. Consequently, benefits to fish and wildlife populations would be reduced compared to the Proposed Project. As a result Alternative 1 was not selected as the preferred alternative in the Trinity River Master EIR and is not carried forward for analysis in this EA/IS.

2.4 Description of Alternatives

A description of the two alternatives that are carried forward in this analysis is presented in the following sections. This section describes the Proposed Project and the No-Project alternative, which is required by CEQA. The No-Project alternative is presented first to provide comparison of impacts to the Proposed Project.

2.4.1 No-Project Alternative

The No-Project alternative represents ongoing activities and operations of the TRRP and other entities involved in restoring the Trinity River with the exception of any TRRP activities occurring at the Wheel Gulch rehabilitation site. Consistent with CEQA Guidelines, Section 15126.6, subdivision (e)(2), existing conditions are defined as those that “would be reasonably expected to occur in the foreseeable future if the project were not approved” (Association of Environmental Professionals 2009). This is consistent with the NEPA definition of the No Action alternative involving federal decisions (42 USC 4321–4347). Collectively, actions and activities authorized in the ROD and incorporated into the No-Project alternative include:

- Implementation of the annual flow release schedule based on recommendations of the TMC to the Director of Reclamation’s Mid-Pacific Region and the Director of the USFWS, Region Eight; and
- Implementation of watershed restoration and rehabilitation projects within the Trinity River Basin, including those funded by the TRRP and members of the TMC, BLM, and the TCRCD.

2.4.2 Proposed Project

The Proposed Project includes specific activities at various areas within the boundaries of the Wheel Gulch rehabilitation site. The activities proposed are similar to those implemented at previous channel rehabilitation sites and include reducing riparian encroachment, LWD placement, physical alteration of alluvial features (e.g., floodplains and side channels), and removal/replacement of riparian vegetation at strategic locations. In addition, the Proposed Project includes placement of clean coarse sediment (gravel approximately 3/8 to 5 inch) at an in-channel island as well as along riverine and tributary activity areas, in order to meet aquatic and terrestrial wildlife habitat objectives. The specific activities that would occur at the Wheel Gulch rehabilitation site are described below. The information contained in this section describes the timing, kind, size, intensity, and location of the activities associated with the site consistent with the CEQA Guidelines (Section 15176 (a) and (c)).

2.4.2.1 Mechanical Channel Rehabilitation Activities

The TRRP has developed specific objectives for the site as well as specific activities that would occur at specific locations within the Wheel Gulch rehabilitation site in support of these. These objectives are:

- Increase the area, quality, and availability of habitat for anadromous salmonids (specifically fry, juvenile, and spawner life stages) over a range of flows;
- Increase the structural complexity of the types of riverine habitat available and thereby increase the range of anadromous salmonid life histories that can be supported;

- Increase the overall surface area of the channel that would be inundated at various flows, thereby enhancing opportunities for development of complex riparian habitat;
- Establish conditions such that the rod flow regime would frequently scour the bed of the river surfaces and inhibit the development of berms;
- Recruit a diverse assemblage of riparian vegetation into areas that may provide fish habitat as well as onto the surfaces within and above the OHWM, including floodplain surfaces that are not subject to high-flow scouring;
- Develop a sequence of point bars by encouraging lateral migration of the channel at flows characteristic of the 2.5-year recurrence interval discharge;
- Develop low-water alcoves at the base of side channels or scour channels that provide low-velocity aquatic habitat at flows ranging from approximately 300 to 6,000 cfs;
- Develop side channels that would function at flows of 300 cfs or greater;
- Develop high-flow scour channels that would function through a range of flows greater than base flows (e.g., 2,000 to >6,000 cfs);
- Increase the area, quality, and availability of habitats for native wildlife species that may benefit from enhancement of the form and function of the riparian corridor (e.g., migratory birds, western pond turtle [*actinemys marmorata*], and yellow-legged frog [*rana boylei*]);
- Increase recreation opportunities (e.g., fishing access, watchable wildlife facilities) along the trinity river corridor consistent with federal, state, and local requirements and guidelines (e.g., the STNF land and resource management plan [LRMP], and BLM resource management plan [RMP]); and
- Reduce the occurrence of noxious and invasive plant species (e.g., Dalmatian toadflax [*Linaria genistifolia*] and yellow star thistle [*Centaurea solstitialis*]).

Below are general descriptions of the types of activities (A, B, C, D, E, G, J, K, L, M, O, and P) proposed at the Wheel Gulch rehabilitation site (Table 1). Refer to Section 2.3.2 of the Trinity River Master EIR for more information about each of these activity types.

Table 1. Rehabilitation Activities Proposed at Wheel Gulch.	
LABEL	ACTIVITY TYPE
A	Recontouring and vegetation removal
B	Construction of inundated surfaces (450 cfs)
C	Construction of inundated surfaces (1,000 – 4,500 cfs)
D	Construction of inundated surfaces (6,000 cfs)
E	Low-flow side channel (300 cfs)
G	Alcove
J	Placement of excavated materials
K	Staging/use areas (includes gravel processing and stockpiling)
L	Roads, existing
M	Roads, new
O	Revegetation
P	LWD installation
Q	Split flow channel (30 to 60% of river flow)

Activities A through G are intended to increase the potential for the river to meander (migrate) within the floodplain in which it has been confined by historic dredging activities and, more recently, impacts related to the construction and operation of the TRD. In addition to the immediate changes to the channel (e.g., side channel construction and berm removal), the Proposed Project would increase the likelihood that the Trinity River would reflect more of the “healthy river” attributes of an alluvial river, as described in Section 4.3 of the Trinity River Master EIR. Activities E, G, P, and Q are intended to create off-channel habitat that would provide refuge for salmonids and other aquatic wildlife during inundation. The side channels, alcoves, and floodplain enhancements would also provide additional complexity to the riverine environment and areas of riparian habitat diversity. All of these activities are consistent with the “healthy river” attributes. Activities J through M are associated with the transfer, placement, and stabilization of material excavated from the riverine areas. In conjunction with Activity J, various grading techniques would be used to develop seasonal, off-channel riparian habitat available for western pond turtles and other riparian-dependent species. Activity K includes the processing and storage of coarse sediment.

Activity A (Recontouring and Vegetation Removal)

The ground surface would be modified to reduce riparian encroachment and minimize the risk of stranding of juvenile salmonids. Vegetation would be cleared at some locations, but would be maintained where possible. Activity A also includes grading to construct or enhance topographic features that could develop into functional riparian habitat; excavation and fill would be balanced such that there is no net change in the volume of earthen material within the activity area. Removed vegetation would generally be chipped/masticated and spread/buried in revegetation areas in order to increase nutrients and water holding capability of the soils. Activities would be accomplished using a variety of methods, including hand tools and heavy equipment, such as excavators, bulldozers, scrapers, and dump trucks.

Activities B, C, and D (Construction of Inundated Surfaces)

Activities associated with the construction of inundated surfaces would enhance the connection of these surfaces to the river at various flows. As a reference point, the OHWM correlates to a 1.5-year recurrence flow. (On figures the OHWM is estimated by hydraulic modeling. The OHWM is approximately 6,000 cfs as measured below Rush Creek to roughly Weaver Creek; downstream of Canyon Creek the OHWM which results from spring ROD flows is approximately 6,600 cfs however winter flow events, which are greater than this, occur frequently). These activities are intended to expand the surface area of the channel that could be inundated by reoccurring flows below the OHWM. Vegetation would be cleared as necessary, and earth would be excavated to meet design elevations for periodic inundation. Materials placed below and within one foot of the low flow water surface would consist of clean coarse sediment or native alluvium.

These newly inundated surfaces would provide important rearing and slow-water habitat for juvenile salmonids and other native anadromous fish. They would also provide low points that could enhance sinuosity and thereby provide the habitat variability that was historically present and is required to support rapid growth of native fishes.

These treatment areas would rely on a combination of natural recruitment of native riparian vegetation and riparian planting to enhance the establishment of a diverse assemblage of native vegetation. If initial revegetation establishment is less successful than anticipated, additional

efforts would be made to establish riparian vegetation consistent with the CDFG policy of no net loss in riparian vegetation from pre-project levels.

Activity E (Side Channels)

Modifications to historic side channels would reconnect the Trinity River with its floodplain at targeted flows. Side channels constructed for 300 cfs flows would provide off-channel, low-velocity habitat for a variety of aquatic organisms, including juvenile salmonids at base flow conditions. As flows recede, these side channels would drain naturally, reducing the likelihood of stranding aquatic organisms.

Side channels would be constructed to leave small berms at the upstream and downstream ends to protect water quality during construction. These berms would be removed at the end of construction if the water in the side channel is of appropriate quality for discharge to the river or the water in the side channel would be left in place for removal by subsequent high flows. Side channels may be pumped to uplands and dewatered during construction to remove turbid water before opening the side channel to the river.

Activity G (Alcoves)

An alcove would be excavated to design elevations at the downstream end of side channels. This would be continuously inundated (approximately 1-2 feet deep during low flows) and would provide year-round juvenile fish habitat.

Activity J (Placement of Excavated Materials)

Excavated materials would be placed in spoils areas so that there would be no increase in the elevation of the 100-year flood to comply with the requirements of Trinity County's Floodplain Ordinance. Spoiled materials would be spread in uniform layers that blend with the natural terrain. In general, revegetation of upland areas, including efforts required for erosion control, would be consistent with agency requirements and with authorization from land managers and owners. Refer to Activity O (Revegetation) for more information.

Activity K (Staging Areas)

Excavated materials would be transported across the staging area to stockpile areas. Water would be applied for construction purposes, including dust abatement, as directed by the Contracting Officer. Activity in these areas would include maintaining existing water wells and other infrastructure. The staging area may also be used for the processing and storage of coarse sediment required for long-term sediment management activities.

Activity L and M (Roads, Existing and New)

Access to the Wheel Gulch rehabilitation site would be via State Highway 299. This road would be used for one or more activities (e.g., access for equipment and personnel, removal of material, revegetation efforts, and monitoring activities). The location of the activity areas within the site would require construction of new access roads for specific project purposes. One of the access roads proposed for the site would remain to provide continued access (for potential long-term maintenance of the Wheel Gulch culvert by Caltrans) and the other would be left in its current unimproved condition after project completion. Site-specific design would consider factors like topography, soils, existing vegetation, and the need for future vehicle access. Best management practices (BMPs) would be used to reduce the impacts of road-related sediment on the riparian and aquatic environments.

Activity O (Revegetation)

Impacts to vegetation are anticipated at most of the activity areas. Revegetation of riparian areas would rely on a combination of planting (at least 50% of the impacted vegetation area would be replanted) and natural recruitment of native species. Revegetation would occur to address landowner requests and fish and wildlife requirements. Native willows from the impact areas would be replanted as clumps during construction to speed recovery of vegetation. In general, the TRRP objective is to ensure that riparian vegetation is minimally impacted by TRRP activities and is replaced at a 1:1 ratio within the Trinity River corridor. Additional planting, seeding and mulching is also planned to control or inhibit the reestablishment of noxious and invasive plant species.

Activity P (LWD Installation)

As appropriate, salvaged large woody debris (LWD) would be retained and incorporated into riverine/in-channel activities to provide additional habitat complexity. This could include LWD placement as individual pieces, small accumulations, and large habitat structures. The addition of large wood would develop topographical and hydraulic complexity and increase bank length to provide additional rearing habitat over a wide range of flows.

Activity Q (Construction of split flow channels (30 to 60% of river flow))

A new channel would be excavated to accept between 30 and 60% of the mainstem Trinity River flow during low flow conditions. The constructed split flow channel would be between 1/4 and 1/2 the width of the existing mainstem channel and would be excavated through the existing floodplain, generally behind the existing riparian berm and vegetation.

2.4.2.2 Activity Areas

Table 2 lists the activity areas associated with the Wheel Gulch rehabilitation site and Figure 3 illustrates these activity and construction areas. As the table shows, each activity area has been assigned a unique alphabetic label that corresponds to the type of activity area. For example, U-1 is the identifier for upland activity area 1 at the site. These labels are used throughout this document. For the Wheel Gulch project area, discrete activity areas were defined by the interdisciplinary design team to include riverine areas, upland areas, and construction support areas. While these areas are intended to encompass the full range of activities, typically the actual area that will be treated would be smaller. For the site, riverine areas are labeled with an R preceding the site number (e.g., R-1, R-2); upland areas are labeled with a U (e.g., U-1, U-2); in-channel work areas (e.g., gravel placement) are labeled with an IC; and construction staging/contractor use areas are labeled with a C. Roads are identified as existing or new. The table also shows the size of the activity areas, the estimated volume of material that would be excavated or filled in each activity area, and the primary use anticipated for each area.

Table 2. Activity Areas at Wheel Gulch Rehabilitation Site.				
Activity Area^a	Type of Activity^b	Activity/Treatment Area (acres)^c	Earthwork (cubic yards)^d	Gravel fill (cubic yards)^d
C-1	New permanent access road (culvert maintenance) (A,M)	0.064	Grading	0
C-2	Existing access road (A,L)	0.013	Grading	0
C-3	Contractor use area (A,K,O)	0.980	Grading	0
C-4	New temporary access road (A,M,O)	0.080	Grading	0
C-5	Infrastructure improvement (A,K)	0.304	Grading	0
C Subtotal		1.441	-	-
IC-1	Gravel augmentation (Island) (A,D,J,P,O)	1.214	0	7,800
IC Subtotal		1.214	-	7,800
R-1	Main channel split flow (A,P,Q)	1.680	17,200	0
R-2	Side channel (A,P,E,O)	0.640	6,700	0
R-3	Alcove (A,P,G,O)	0.389	5,000	0
R-4	Tributary enhancement (A,B,C,O,P)	0.393	4,000	0
R-5	Constructed floodplain, 4,000 cfs (A,C,D,O)	1.362	6,500	0
R Subtotal		4.464	39,400	-
U-1	Contractor use and terrace spoils area (A,J,O)	3.127	48,000	0
U Subtotal		3.127	48,000	-

^aC = construction staging/contractor use areas

IC = in-channel work area

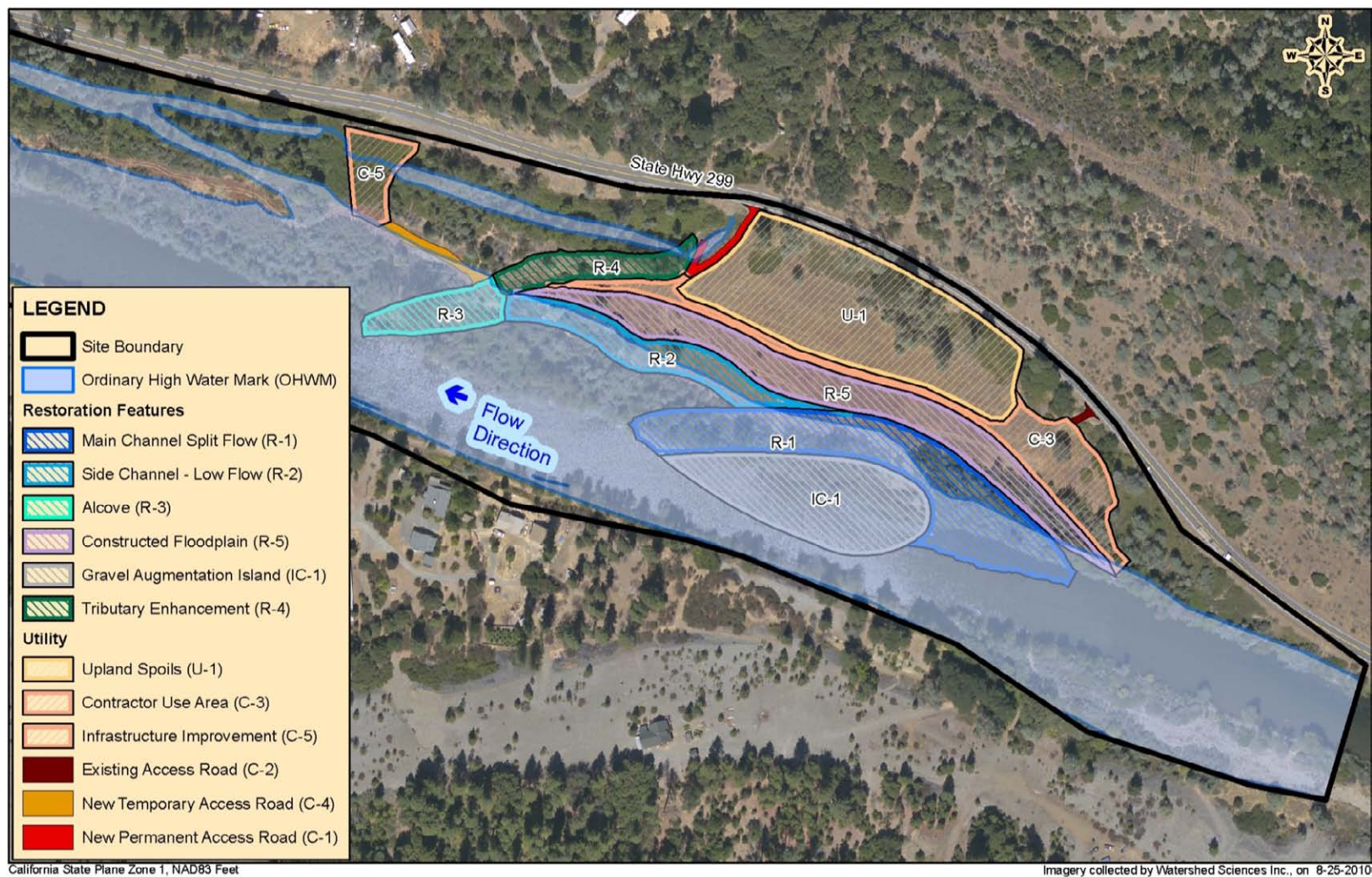
R = riverine work area

U = upland activity area

^bSee Table 1 for explanation of letter codes

^cArea calculated from project GIS

^dProvided by TRRP






 <p>Prepared for the Bureau of Reclamation Trinity River Restoration Program</p>		<p>TRINITY RIVER RESTORATION PROGRAM WHEEL GULCH REHABILITATION SITE ENVIRONMENTAL ASSESSMENT/INITIAL STUDY</p>		 <p>North Wind, Inc. 1425 HIGHAM ST. IDAHO FALLS, ID 83402 WEB: www.northwind-inc.com Phone: (208) 528-8718 FAX: (208) 528-8714</p>

Figure 3. Wheel Gulch – Proposed Project.

ACTIVITY AREA DETAILS

Activity Area R-1 would create an approximate, 60-40 flow split in the mainstem Trinity River channel when combined with Activity IC-1. The new channel, approximately one half of the width of the existing mainstem channel, would be excavated through and behind the existing riparian berm and vegetation. The new channel would be designed to accept approximately 60 percent of the total Trinity River flow during low-flow conditions. The excavated material would be either be processed and clean coarse sediment temporarily stored on the terrace for construction of Activity IC-1, or clean material would be imported to the site and the majority of the excavated material would be placed in the U-1 terrace.

Activity Area R-2 would construct a low-flow side channel behind the riparian berm that would connect activity areas R-1 and R-3. This side channel would be designed to flow year-round and carry approximately 10 percent of the total Trinity River flow. The excavated material would either be processed on the terrace with clean coarse sediment later used to construct Activity IC-1, or clean material would be imported to the site and the majority of the excavated material would be placed in the U-1 terrace. After the side channel is opened to the river, the flow rate may be adjusted as needed via placement of clean gravel or large wood near the side-channel entrance. Wood structures and boulder clusters may be placed at various locations in the side channel to develop channel complexity and increase bank length. This would be expected to provide additional rearing habitat over a wide range of flows and to create conditions conducive to a dynamic, sinuous channel.

Activity Area R-3 would construct an alcove to connect the side channel (R-2) and Wheel Gulch (R-4) to the Trinity River. The low-flow side channel (R2) would flow through the alcove, however, the alcove's increased width would allow for development of low velocity habitat outside of the side channel's main flow. Wheel Gulch is ephemeral; therefore, it would only add water to the system during periods of rainfall or snowmelt. The upstream portion of the alcove would be excavated two feet deeper than the rest of the alcove to temporarily provide additional water depth. While the upstream portion of R-3 may fill in with sediment from the side channel and Wheel Gulch, the downstream end of the alcove is narrower to facilitate the flushing of sediment. Wood structures and boulder clusters may also be placed in-line in the center of the alcove or along the banks, so as to allow flushing of sediment from the alcove. The alcove is designed to provide off-channel habitat for both aquatic and terrestrial species and to increase bank length to provide additional rearing habitat over a wider range of flows.

Activity Area R-4 would construct a channel to connect the Wheel Gulch tributary to the alcove in Activity Area R-3. This would improve the flow of water and sediment through Wheel Gulch and would provide off-channel habitat for a variety of plant and animal species. R-4 would create a backwater area specifically designed to provide rearing habitat for fish and amphibians. Small wood structures and cover elements may be added to the sides of the channel. The wood or cover elements would not be allowed to significantly reduce the flow from Wheel Gulch, which would prevent the transport of sediment supplied from Wheel Gulch. This activity area would also provide a location near the groundwater table for replanting native riparian vegetation.

Activity Area R-5 would construct a dual-purpose revegetation area and high-flow channel. This channel would flow at approximately 4,000 cfs and the margins of the channel would be close enough to groundwater for planting native riparian species. Once the plants mature, this new

riparian corridor would replace the vegetation lost during construction of R-1. The material that is excavated from Activity R-5 can be processed for use in Activity area IC-1 and excess material stockpiled in the U-1 terrace. Planting activities would occur on the sloping sides of this channel but not in the thalweg. Keeping the channel thalweg free from obstruction would help reduce sedimentation, thereby increasing the life span of the channel and the possibility of natural vegetation recruitment. This activity area would provide a suitable ground surface for the replanting of native riparian species on a terrace that is otherwise too high above the groundwater table for successful plant survival.

Together, Activity area R-1 and IC-1 would create an approximate, 60-40 flow split in the mainstem Trinity River channel, with 60 percent of the low-flow river flowing through the R-1 channel. Material excavated from area R-1 would be placed to form the IC-1 island. Activity IC-1 would reduce the existing mainstem width to approximately one half of its present size. The larger size fraction of material excavated from R-1 would form the core of the island, the spawning size gravel (approximately 3/8 inch to 5 inch diameter) would form the middle layer, and finer material would form the upper layer. Portions of the new island would be replanted to mitigate for vegetation lost during the construction of other project features. All material placed in the active channel for the construction of IC-1 would be cleaned prior to placement to minimize turbidity in the Trinity River. Once IC-1 is constructed to an elevation approximately 1 foot greater than the low flow river water surface elevation, the gravel cleaning requirement would be reduced. This feature would develop channel complexity and increase bank length to provide additional salmonid rearing habitat over a wide range of flows and would create the conditions of a dynamic sinuous channel.

Activity area U-1 would construct an upland terrace with excavated material not put to beneficial use elsewhere within the Wheel Gulch rehabilitation site. Depending on the composition and volume of the available material, this terrace may be suitable for the planting of upland tree species. Topsoils from the project would be stockpiled for use in replanting the terrace. The final terrace elevation would depend on the compaction and expansion of the material that is stockpiled there. The terrace would be designed to maintain acceptable flood hydraulics at the project reach. Though several trees growing on the existing floodplain terrace would need to be removed for U-1 construction, efforts would be made to retain trees that are growing on the highway embankment. This activity would create an upland corridor of trees.

Activities proposed for the Wheel Gulch rehabilitation site are intended to emphasize reconnecting the river's floodplain with the river, establishing or expanding side-channel habitat, and enhancing the bed and banks of the Trinity River to promote well-distributed aquatic habitat (wetted edge habitat) over a range of flows. Augmenting alluvial material and LWD within the IC area to create an island would enhance the development of side channel flows as well as alcove development and create aquatic habitat at additional flow rates. Collectively, these activities are intended to enhance aquatic habitat for anadromous fish under a range of flow conditions.

Excavation activities associated with construction of the site are expected to yield a total of greater than 39,000 cubic yards of alluvial material (Table 2). The gravel augmentation (island) feature would be created using approximately 7,800 cubic yards of fill material. Approximately 4,000 cubic yards of coarse sediment used to create the island would be cleaned for placement near and below the low flow water surface. Fill approximately 1 foot above the low flow water surface would include fine sediment and larger cobble material to facilitate long-term revegetation of the

constructed island. Riverine activities would use adjacent upland and staging areas within the boundaries of the site for disposing of and/or stockpiling excavated or processed materials. The U-1 terrace has the capacity to hold nearly 48,000 cubic yards of excavated material. The size of the U-1 terrace is designed to account for expansion of stockpiled material (earth and rock) and cleared masticated vegetation (approximately + 20 percent) that may be placed there.

2.4.2.3 Common Activities and Construction Criteria and Methods Associated with the Proposed Project

In addition to the activities included in Table 2, several other activities are common to all activity areas to varying degrees. These common activities—vegetation removal, watering, and monitoring—are briefly discussed in Appendix A. Appendix A also provides a general overview of the construction process for the Proposed Project. Earthmoving equipment that may be used at the site to complete the construction activities includes dump trucks, front loaders, backhoes, dozers, tractors, scrapers, and graders. Monitoring would occur as a required element of the Proposed Project and responds to the TRRP program management objectives, as well as the elements of the Mitigation Monitoring and Reporting Program (MMRP) required pursuant to CEQA. The MMRP, included as Appendix E of the Trinity River Master EIR, is incorporated in its entirety by reference. Specific mitigations measures proposed as part of the MMRP for the Wheel Gulch Proposed Project are included as Appendix B of this EA/IS.

2.4.2.4 Tentative Schedule

Design of Wheel Gulch started in 2008 and the Proposed Action, which incorporates landowner and TRRP design input, was completed in December 2010. The Project is expected to be constructed in 2011 between July and December. The total construction time is anticipated for 160 days. Most site revegetation, with willow and riparian cuttings, and monitoring would occur in subsequent years. However, revegetation of island areas, as well as seeding and mulching of the floodplain and terrace, would take place after construction. Construction associated with the Proposed Project cannot begin until the environmental process is completed. In addition, the following must have been completed: the final design, plans, contract specifications, and cost estimates; award of contract(s) for work; hazardous materials site assessments; acquisition of rights-of-way; acquisition of permits; and design approvals from local, state, and federal agencies.

To minimize impacts to breeding birds, construction would begin after nesting (August 1) or pre-August bird surveys would determine areas where nesting birds would not be impacted by construction. Surface disturbance activities may be limited during the late spring (May and June), depending on the flow release schedule established for the particular water year. In August 2011, releases from Lewiston Dam will increase for up to a week to approximately 2,500 cfs to accommodate the bi-annual HVT White Skin boat dance. The majority of excavation and grading activities would typically occur between July 15 and November 1, prior to the onset of the wet season. However, excavation may continue later so long as surface water runoff does not increase the mainstem Trinity turbidity by >20% (Trinity River summer turbidity is typically very low; <2NTU). All in-channel work would be completed by September 15. Any revegetation (placement of rooted plants or seeding) would take place in the wet season (fall/winter) following or a year after construction.

2.5 Alternatives Considered but Eliminated from Further Evaluation

In addition to the alternatives described above, the following alternatives were also considered but dismissed for the reasons provided.

2.5.1 Dispose of Material Below 100-Year Base Flood Elevation

To minimize material haul distance and cost, placing excavated material below the 100-year base flood elevation was considered. This option would involve moving excavated material a short distance and depositing it in an adjacent flat area within the floodplain. After investigation, it was determined that placing large amounts of material in the floodplain could result in undesirable changes to Federal Emergency Management Agency (FEMA) flood elevations both within and outside of the project boundaries. As a result, this alternative was dismissed from further consideration.

2.5.2 Increase Removal of Riparian Vegetation

In addition to influencing the alluvial processes that have been reestablished (to varying degrees) post-ROD, the distribution and density of riparian vegetation adjacent to the Trinity River below the TRD inhibits views of the river from a number of locations, including residences, businesses, and recreational river access points. As the Proposed Project was developed, the lead agencies considered an alternative that would substantially increase removal of riparian vegetation to enhance the aesthetic values for local residents and visitors to the Trinity River. Based on input from agencies and local landowners, the lead agencies considered the request to remove more riparian vegetation, but determined that the level of vegetation removal required to enhance aesthetic values could result in significant adverse environmental impacts and is beyond that required to meet the fundamental objectives of the TRRP. This alternative was dismissed from further consideration.

Chapter 3

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1 Introduction to the Analysis

This chapter presents an analysis of the potential environmental impacts associated with implementing the proposed activities at the Wheel Gulch rehabilitation site. The analyses are presented by environmental resource area. The analysis for each resource area includes discussions of the existing environmental setting, applicable significance criteria, potential environmental impacts, and mitigation measures.

3.1.1 Affected Environment/Environmental Setting

The affected environment/environmental setting section for each resource area describes the existing conditions using the most current information available. Conditions existing at the time the Notice of Preparation (NOP) for the Trinity River Master EIR was published (March 2008) are used to establish the environmental baseline for CEQA purposes (CEQA Guidelines Section 15126.6(e)(1)). Throughout the remainder of this document, this baseline will provide the basis for determining whether the Proposed Project's environmental impacts are likely to be significant. The anticipated impacts of the alternatives, including those required for both CEQA and NEPA, are analyzed in this chapter.

3.1.2 Environmental Consequences

Under CEQA, the concept of environmental "impacts" or environmental "effects" (the terms are used synonymously), as well as the determination of the significance of those impacts, is focused on changes in the existing physical conditions in the affected environment. The impacts of the project are identified and the level of significance of the impacts is determined in the following sections of this chapter. The impact analyses consider the type, size, location, and intensity of the potential effects associated with the activities proposed under the Proposed Project. The subsections presented in the Environmental Impacts section for each resource area are described briefly below.

3.1.2.1 Methodology

This subsection identifies the methods used to analyze impacts, as well as the key assumptions used in the analysis process. Sections that incorporate quantitative assessments reference complementary technical appendices, as appropriate. Key assumptions used in qualitative analyses are described for those sections that do not rely on quantitative tools.

3.1.2.2 Significance Criteria

This subsection presents the criteria and thresholds used to identify potentially significant effects on the environment, in accordance with California PRC Section 21082.2 and CEQA Guidelines Sections 15064 and 15065. "Thresholds" include guidance provided by the CEQA Guidelines, agency standards, legislative or regulatory requirements as applicable, and professional judgment. All impacts that do not exceed the stated significance criteria described for each section are

assumed to be less than significant and are therefore not discussed in detail in the document (PRC Section 21100 and CEQA Guidelines Section 15128).

3.1.2.3 Summary of Impacts Table

At the beginning of the Impacts and Mitigation Measures subsection is a table that identifies all of the impacts evaluated for that particular environmental issue area. Included in this summary table are the various levels of significance (i.e., no impact, less than significant, significant) for the Proposed Project and No-Project alternatives. The tables also indicate what the level of significance would be after mitigation is implemented.

3.1.2.4 Impacts and Mitigation Measures

In this subsection, each impact statement is presented followed by a detailed impact analysis. Mitigation measures that would reduce significant impacts associated with the Proposed Project to less than significant levels are identified after each impact discussion and are provided in Appendix B. An alphanumeric coding system that corresponds to the mitigation measures found in Appendix E of the Master EIR is used to identify each mitigation measure.

3.1.3 Mitigation and Monitoring Program

California PRC section 21081.6(a), subdivision (a), however, requires lead agencies under CEQA to “adopt a reporting and mitigation monitoring program... in order to mitigate or avoid significant effects on the environment.” Mitigation measures that will be implemented in association with the Proposed Project are clearly identified and presented in Appendix B in language that will facilitate establishment of a monitoring and reporting program. In addition, Appendix A includes a number of design elements and construction criteria that are incorporated into the Proposed Project. Relevant information described in Appendix A will also be included as environmental commitments in conjunction with any mitigation measures adopted by the Regional Water Board as conditions of project approval. These conditions of project approval will be included in a MMRP to verify compliance. The Draft MMRP is included as Appendix B. The approval of such a program will be part of any action taken by the Regional Water Board with respect to the Proposed Project. When other state, regional, or local agencies subject to CEQA approve portions of the Proposed Project under their jurisdiction or regulatory power, these “responsible agencies” will be required to adopt their own MMRPs (*CEQA Guidelines*, Section 15097, subd. (d)).

3.2 Land Use

This section describes existing and planned land uses in the vicinity of the Wheel Gulch rehabilitation site and evaluates the potential impacts to land uses from implementation of the Proposed Project. More information about this resource is presented in the Trinity River Master EIR (Section 4.2) and that information is incorporated herein by reference.

3.2.1 Affected Environment/Environmental Setting

3.2.1.1 Existing Land Uses

Both privately-owned and public-managed land is present in the project area (see Figure 2). Within the site boundary, there are 30.52 acres of private land, 2.06 acres of State land (in the SR-299 easement), 3.84 acres of BLM-managed land, and 0.20 acres of county owned (NPO) land. In the

areas potentially impacted by construction, ownership includes: 0.5 acres of BLM-managed land; 0.7 acres of State-managed land in the SR-299 easement, and 8.6 acres of privately owned land. Public land in and adjacent to the Wheel Gulch rehabilitation site is primarily used for resource management and recreation and is managed for multiple uses in conformance with specific agency guidance documents. BLM-managed lands are administered in accordance with BLM's Redding RMP, and USFS lands are managed in accordance with the Shasta-Trinity National Forest LRMP. These plans discuss the general condition of natural resources in the respective plan area and prescribe appropriate land use management for lands within the plan jurisdiction. Relevant land use plans are summarized in Section 4.2.2 of the Trinity River Master EIR.

Weaverville is located 45 miles west of Redding on SR-299 adjacent to Weaver Creek, a tributary to the Trinity River. It is the largest community in Trinity County with a 2000 population of 3,554 (U.S. Census Bureau 2005, 2008). Junction City is located on SR-299 approximately 9 miles west of Weaverville with an estimated population of 700. Small communities such as Junction City, which is near the Wheel Gulch rehabilitation site, are situated adjacent to the Trinity River in areas where terrain is relatively gentle.

Development in these rural communities is primarily residential, typified by scattered single-family residences and mobile homes. Much of the housing within this residential development has encroached on the river's floodplain and that of its tributaries. The Trinity River near the site is used by anglers, rafters, wildlife watchers, and tourists. The river is accessible at several public and private locations throughout the area.

Existing land uses typical of the area are primarily residential, timber and other resource production, recreation, and open space. In general, privately owned parcels within and adjacent to these sites have been subdivided to the fullest extent possible under existing zoning designations. Therefore, future rural residential development on the uplands, above the river's floodplain, would be minimal. Future development is further restricted by the proximity of parcels to the Trinity River; many of these parcels are zoned Flood Hazard and Open Space. Proposed channel rehabilitation activities would not result in any changes that would conflict with future proposed land uses.

3.2.1.2 Local Land Use Planning

TRINITY COUNTY GENERAL PLAN

Lands in the project area are located in Trinity County. The Trinity County General Plan (Trinity County 2003) applies to privately owned lands in the project area; these lands fall under several of the county's land use designations. The County has established zoning districts for planning purposes. For a detailed discussion of Trinity County General Plan land uses and definitions, refer to the Trinity River Master EIR (Section 4.2, Table 4.2-1).

JUNCTION CITY COMMUNITY PLAN

The Junction City Community Plan (Trinity County 1987) covers approximately 42 square miles (27,000 acres) centered around the Trinity River from Maxwell Creek to Helena. There are approximately 16.5 miles of river frontage in the rural community of Junction City; private lands account for 36 percent of these lands. Neighborhoods that are adjacent to the river include Dutch Creek Road, Sky Ranch Road, Community Core, and Red Hill Road. Land uses along the river in Junction City vary by neighborhood and include timber and other resource production,

agricultural, residential, commercial, village, and open space. These land uses occur at varying densities, which range from 2.5 to 160 acres.

The Wheel Gulch rehabilitation site is within the Junction City Community Plan area, adjacent to the Red Hill Road neighborhood. Land use designations in this neighborhood are typical of the community plan area, primarily Rural Residential, Open Space, and Resource designations with the majority of parcels falling in the Rural Residential designation.

TRINITY COUNTY ZONING

The Trinity County Zoning Ordinance is discussed in Section 4.2 of the Trinity River Master EIR, including details about Trinity County zoning districts that apply to lands in the area. All areas in the 100-year floodplain of the Trinity River have been designated by Trinity County as Scenic Conservation Zones. A portion of the channel rehabilitation site is located in the 100-year floodplain of the Trinity River as determined by FEMA. Sites in the 100-year floodplain have been designated as Zone A, Zone X, and Zone X500 Flood Hazard Areas⁴ and areas within the 100-year floodplain are designated by Trinity County as Scenic Conservation Zones.

3.2.2 Environmental Consequences/Impacts and Mitigation Measures

3.2.2.1 Methodology

The methodology used for the land use impact analysis involved an assessment of the compatibility of the Proposed Project with relevant plans and policies; a review of the Trinity County General Plan, Junction City Community Plan, and zoning in relation to surrounding land uses and site features; and communication with county staff. The analysis was conducted through a literature review and site visit.

3.2.2.2 Significance Criteria

The following significance criteria were developed in the Trinity River Master EIR and are based on guidance provided by CEQA guidelines. Impacts to land uses would be significant if they would:

- Result in land uses that are incompatible with existing and planned land uses adjacent to actions described as part of the project;
- Conflict with any applicable land use plan, policy, ordinance, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect;
- Disrupt or divide the physical arrangement of an established community;
- Result in substantial nuisance effects on sensitive land uses that would disrupt use over an extended time period;
- Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance to non-agricultural use; or
- Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan.

⁴ Zone A is an area inundated by 100-year flooding for which no Base Flood Elevation (BFE = 100 year flooding water surface elevation) has been determined. Zone X is an area inundated by 100-year flooding with average depth of less than one foot, or with drainage areas less than one mi², or areas protected by levees from a 100-year flood event. Zone X500 is an area between the 100 and 500 year floodplain.

3.2.2.3 Impacts and Mitigation Measures

Table 3 summarizes land use impacts that could result from implementation of the No-Project alternative and the Proposed Project.

Table 3. Summary of Potential Land Use Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.2-1. Implementation of the project could disrupt existing land uses adjacent to the rehabilitation site.		
No Impact	Less than significant	Not applicable ¹
Impact 3.2-2. Implementation of the project could be inconsistent with the goals, policies, and objectives of the BLM RMP, the USFS LRMP, the Trinity County General Plan, or other local community plans, policies, and ordinances.		
No Impact	Less than significant	Not applicable ¹
Impact 3.2-3. Implementation of the project may affect the availability of a locally important mineral resource recovery site.		
No Impact	Less than significant	Not applicable ¹

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.2-1: Implementation of the project could disrupt existing land uses adjacent to the rehabilitation site.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no restoration activities would occur. Therefore, there would be no impact.

PROPOSED PROJECT

The Proposed Project would not introduce a new land use within the boundaries of the site, nor would it obstruct the water conveyance functions of the 100-year floodplain. Project activities that aim to restore floodplain functions would have long-term benefits for many land uses that are located along the Trinity River.

The Proposed Project is designed to minimize short-term disruptions to the community of Junction City that could occur because of rehabilitation activities at the site. Construction and staging areas would be located in and adjacent to the 100-year floodplain, which is designated as a Scenic Conservation overlay and is generally free of development. A small percentage of the activity would be located on public lands within the site (the upstream portion of R-1 and R-5 would affect 0.5 acres of BLM-managed land and a small portion of the U-1 terrace would affect the SR-299 easement). The majority of the rehabilitation activities and river access would occur on private lands (8.6 acres) within and adjacent to the site (refer to Figures 2 and 3). Staging, construction, and access on private lands in and adjacent to the site boundaries would require landowner approval. Work within the SR-299 easement would require a Caltrans encroachment permit and traffic control for ingress and egress. Residential and commercial development located within or near the site is outside the areas of direct impact associated with the Proposed Project.

Project staging and construction activities at the site would occur in proximity to several residences which exist either across the river or across SR-299; however, project activities would not interfere with, preclude, or conflict with adjacent land uses. All activity areas for this site would be located

on the north side of the river and adjacent to SR-299, while all of the adjacent residential development is on the south side of the river.

Based on the analysis above, potential conflicts with or disruptions to adjacent land uses resulting from activities associated with the Proposed Project would be temporary and less than significant. As discussed in Section 3.16, Transportation and Traffic, no road closures would result from implementation of the Proposed Project. Access to adjacent residences would be maintained during project construction and post-construction monitoring activities (refer to Appendix A).

Construction activities in the river channel could interrupt adjacent land uses for short periods; but they would not preclude the use of nearby businesses or residences. Construction and transportation associated with the Proposed Project could produce minor nuisance effects (i.e., air quality, aesthetics, and noise) at some nearby residences; however, such impacts would be temporary and would not significantly affect the ability to use adjacent lands. Project impacts associated with air quality, aesthetics, and noise are discussed below in Sections 3.11, 3.12, and 3.14, respectively.

Impact 3.2-2: Implementation of the project may be inconsistent with the goals, policies, and objectives of the STNF LRMP, BLM's RMP, and the Trinity County General Plan, as well as local community plans, policies, and ordinances.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, rehabilitation activities would not occur. Therefore, there would be no impact.

PROPOSED PROJECT

Implementation of activities proposed under the Proposed Project would not introduce land uses that are incompatible with existing or proposed land uses, nor would rehabilitation activities conflict with any applicable land use plan, policy, or ordinance. The discussion provided for this impact in Section 4.2.2 of the Trinity River Master EIR summarizes the project's consistency with federal, state, and local plans, policies, and ordinances. The impacts would be less than significant.

Impact 3.2-3: Implementation of the project may affect the availability of a locally important mineral resource recovery site.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no rehabilitation activities would be implemented. Therefore, there would be no impact.

PROPOSED PROJECT

There are no locally important mineral recovery sites located within or adjacent to the Wheel Gulch rehabilitation site. The TRRP has worked closely with the mining community to locate site boundaries in a manner that minimizes any mineral recovery efforts. Therefore, the Proposed Project would have a less than significant impact.

3.3 Geology, Fluvial Geomorphology, Minerals, and Soils

Section 4.3 of the Trinity River Master EIR describes geologic, fluvial geomorphic, and soils resources in the vicinity of the Wheel Gulch rehabilitation site and that information is incorporated

herein by reference. This section describes site-specific information important for the analysis and evaluates the potential impacts to these resources from implementation of the Proposed Project.

3.3.1 Affected Environment/Environmental Setting

3.3.1.1 Fluvial Geomorphology

A discussion of the regional and local fluvial geomorphology is included in the Trinity River Master EIR (Section 4.3). The geomorphic environment of the Wheel Gulch rehabilitation site is directly affected by the hydrology, channel bed composition, sediment regimes, and riparian vegetation present. Modification of the channel and floodplain configuration has altered and simplified the natural diversity of geomorphic processes and products within the site, hence limiting the variety of channel forms, habitats, and vegetation structures.

Extensive modification of historic and modern alluvial landforms within the site is evident by the aerial extent of channel modifications resulting from historic mining and, more recently, impacts related to the TRD. A comprehensive discussion of these modifications is provided in the Trinity River Master EIR (Section 4.10, Cultural Resources). Table 4 provides a summary of the geomorphic features for the site.

Table 4. Geomorphic Features within the Wheel Gulch Rehabilitation Site Boundary.	
GEOMORPHIC FEATURE	ACRES
Vegetated Riparian Berm*	6.59
Floodplain	2.90
Coarse Fill	0.46
Bar	0.51
Modified Terrace*	13.07
Upland Hillslope	3.65
Water	9.97

* = Human induced geomorphic feature

The mainstem Trinity River flows southeast to northwest through the site. The following description uses the river left or left bank and river right or right bank concept to describe the location of resources on each side of the river. River left and river right are defined from the standpoint of someone looking downstream. The stretch of river within the Wheel Gulch rehabilitation site is relatively straight with one slight curve at the downstream end of the project area and is confined by steep banks and thick vegetation. The project area begins at RM 76.4, downstream of an alluvial riffle at RM 76.5 and a constriction caused by the valley wall on the right and anthropogenic terrace on the left. Downstream of the constriction, the valley opens up and there is a large terrace on river right which appears to be a pre-TRD gravel bar or floodplain that is now covered by post-TRD fine sediment. The valley is also open on river left, but this terrace is much higher and its shape and size have been heavily impacted by anthropogenic activities. The slope of the river within the project area is 0.0017.

The river is confined by steep slopes along the left (south) bank throughout most of the site. On the right (north) bank of the Trinity River, the study area is dominated by an alluvial floodplain and riparian berms, and is bounded by SR-299 (Figure 4). The downstream portion is composed of steep bedrock and hillside, and includes the vehicle access point off SR-299. The south side of the river includes a thin riparian berm, portions of several rural residences, and part of a large alluvial bar and floodplain. Steep mountain hillsides rise from beyond the limits of the floodplains.

The right bank is a relatively flat, high terrace with a significant riparian berm along approximately one half of its total length and thick riparian vegetation consisting predominately of blackberry and willow along the entire length of the bank. These modified terrace deposits (13.07 acres) dominate the geomorphic features of the right bank.

The deposits have been modified by past human activities such that the natural diversity of geomorphic processes and products is limited. This large terrace transitions up to the hillslope area adjacent to SR-299. Wheel Gulch is a small intermittent tributary entering the project area from the north approximately midway through. This stream collects runoff and roadside ditch drainage from its watershed north of the project area. This water then flows through a box culvert as it passes under Highway 299 before it is discharged into a basin excavated in the terrace at the toe of the highway slope. The sediment retention basin between SR-299 and the Trinity River was constructed by Caltrans. If there is enough water being discharged through the box culvert, it may flow through a drainage channel at the toe of the highway slope and enter the river at the downstream end of the project area. However, the drainage often clogs with sediment because of its low slope and long travel distance. Consequently, Caltrans now dredges portions of the drainage periodically (approximately every 5 years).

The river bank adjacent to this terrace along most of the right bank of the project area consists of a heavily vegetated riparian berm. The terrace is open and grassy in some areas, but is also colonized by some relatively mature willows and other riparian tree species. A high flow channel is present that connects with the river at RM 75.9 however surface flow only occurs here when Trinity River flows are greater than about 7,000 cfs. Although some portions of the channel have been affected by sedimentation, it still provides some function during higher flows.

The site is adjacent to a number of residences on the left bank of the river but they are all located above the OHWM established for post-ROD flows. The left bank of the river is controlled by a relatively steep terrace that is contiguous with the uplands. A small berm is present on this bank at the upstream end of the project area. Floodplain deposits are present on the left side of the active channel in the downstream portion of the site.

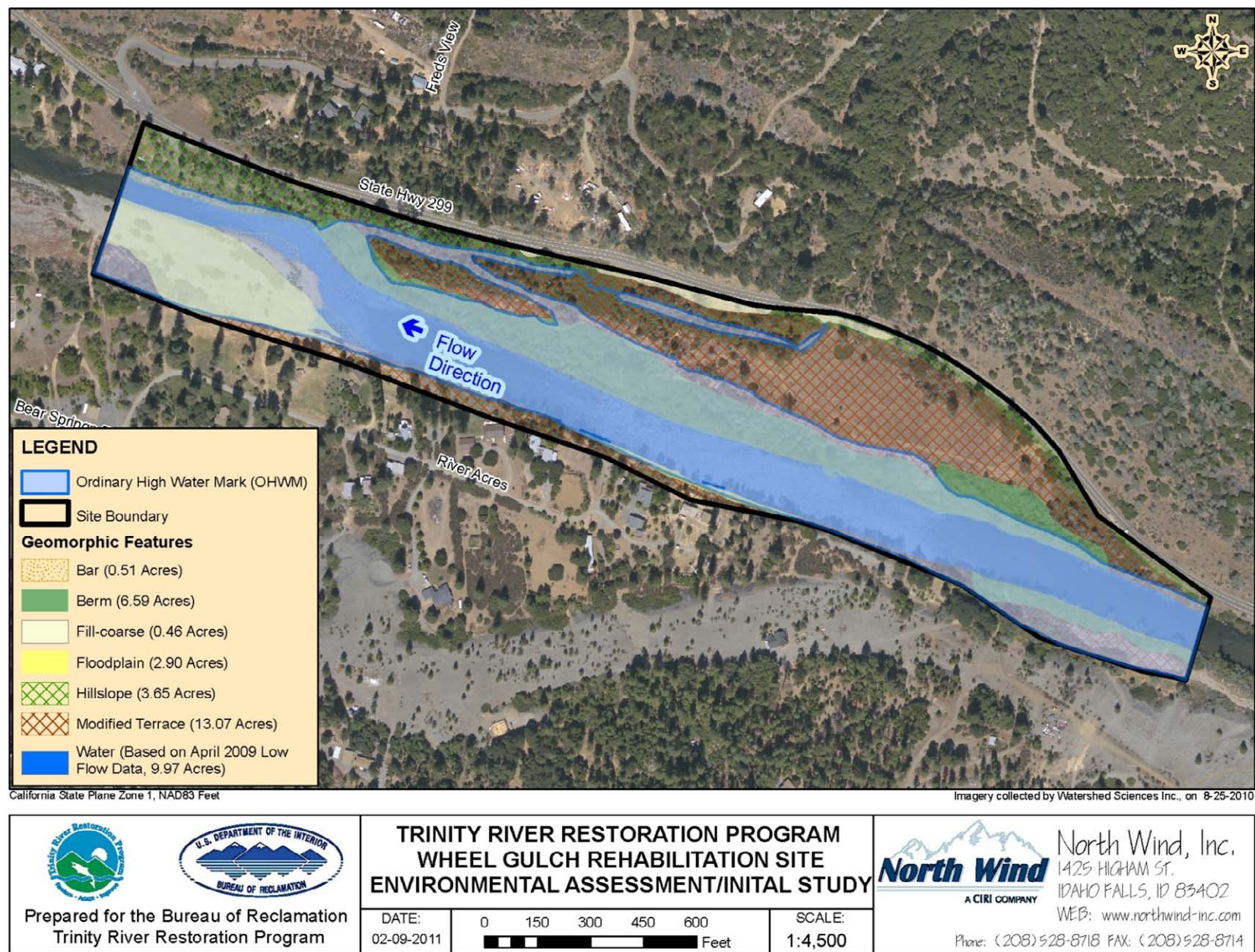


Figure 4. Geomorphic Features at the Wheel Gulch Rehabilitation Site.

3.3.1.2 Minerals

Many minerals of economic importance are present in the Klamath Mountains Province, including gold, copper, zinc, chromite, manganese, platinum, silver, and mercury. Historically, the principal mineral of economic importance was gold. Both lode (hardrock) and placer (alluvial gravel) mines were present in the watershed, with activity from 1848 to the present. The tailing deposits associated with large-scale placer mining provide a substantial source of aggregate required in various construction projects. Recent and ancient alluvial deposits were extensively mined until the 1940s using a variety of techniques. Over time, aggregate mining of alluvial deposits and reworking of hydraulic tailings have resulted in additional channel modifications and changes in sediment supply.

The Wheel Gulch area has been heavily disturbed by mining activities and the left side of the channel contains dredge tailings. The two closest mines to the Wheel Gulch rehabilitation site are the Red Hill Mine and the La Grange Mine. According to BLM records, most of the claims in the area are filed as placer mines. Currently, there are no authorized operating plans for placer mining activities within, or in close proximity to, the rehabilitation site. A sand and gravel extraction company is currently operating at the site of the historic La Grange Hydraulic Gold Mine, upstream of Junction City.

3.3.1.3 Geologic Hazards

A discussion of the regional seismicity and seismic hazards is provided in the Trinity River Master EIR (Section 4.3). No local active Quaternary faults have been identified, although little detailed mapping of Quaternary geologic features has been conducted in the area. The soils bordering the Trinity River are predominantly alluvial in nature and have the potential to experience liquefaction – a process whereby water-saturated granular soils are transformed to a liquid state during ground shaking; however, the type of activities described in Chapter 2 would not affect the potential for liquefaction or be affected by liquefaction were it to occur.

3.3.1.4 Soils

The soils at the site are described in the Soil Survey of Trinity County, California, Weaverville Area (U.S. Department of Agriculture 1998). There are two main soil types in the project area. They are 213 – Xeralfs-Xerorthents Complex, 5 to 50 percent slopes and 217 – Xerofluvents-Riverwash Complex, 0 to 5 percent slopes. The parent material of the first type (213) is eroded from hydraulic mining alluvium derived from schist and/or eroded from hydraulic mining alluvium derived from sedimentary rock. Xeralfs and Xerorthents are found on terraces and hillslopes and this soil type is generally found in upslope areas at the site. The typical profile is very gravelly clay loam in the top layer (0 to 1 inches) and extremely gravelly clay loam below that (1 to 30 inches). Typical profile of the xerorthents is very gravelly clay loam (0 to 4 inches) underlain by extremely gravelly loam (4 to 12 inches). The second soil type (217) was formed from alluvium derived from igneous, metamorphic and sedimentary rock. It is comprised primarily of Xerofluvents and similar soils in combination with approximately 35 percent Riverwash. Xerofluvents are found on floodplains and typically consists of gravelly sand in the top layer (0 to 50 inches) and extremely gravelly coarse sand (5 to 60 inches). This complex is found near the river throughout the site.

3.3.2 Environmental Consequences/Impacts and Mitigation Measures

3.3.2.1 Methodology

Data for the following analysis were taken from existing reports on regional and local geology as well as on-site assessments during field reviews. These reports include the following documents: Geology of Northern California (U.S. Geological Survey 1966); Soil Survey of Trinity County, California, Weaverville Area (U.S. Department of Agriculture 1998); site-specific reports documenting wetland delineations performed by North State Resources for the TRRP; Trinity River Mainstem Fisheries Restoration Program EIS; Trinity River Maintenance Flow Study Final Report (McBain and Trush 1997); Trinity County General Plan; and previously cited online and Geographic Information Systems (GIS) data sources.

3.3.2.2 Criteria for Determining Significance

A project would have a significant impact related to geology, geomorphology, soils, and minerals if it could subject people, structures, or other resources to geologic or seismic hazards or disrupt, eliminate, or otherwise render geologic, soil, or mineral resources unusable or unavailable.

Significant impacts would occur if the project would:

- Expose people, structures, or critical utility facilities to major geologic hazards (including seismicity, landslides, seiches, and liquefaction);
- Involve changes in topography that would result in unstable soil conditions;
- Increase erosion rates to a level at which associated sedimentation levels could affect streams, rivers, or other water bodies;
- Interfere with existing, proposed, or potential development of mineral resources; or
- Be inconsistent with the ten Trinity River healthy alluvial river attributes.

3.3.2.3 Impacts and Mitigation Measures

Table 5 summarizes the potential geology, fluvial geomorphology, minerals and soils impacts that would result from the No-Project alternative and the Proposed Project.

Table 5. Summary of Geology, Fluvial Geomorphology, Soils, and Minerals Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.3-1. Implementation of the project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction.		
No impact	No impact	Not applicable ¹
Impact 3.3-2. Construction activities associated with the project could result in increased erosion and short-term sedimentation of the Trinity River.		
No impact	Significant	Less than significant
Impact 3.3-3. Implementation of the project would interfere with existing, proposed, or potential development of mineral resources.		
No impact	Less than significant	Less than significant

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.3-1: Implementation of the project could result in the exposure of structures and people to geologic hazards, including ground shaking and liquefaction.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction activities would occur. There would be no new exposure of structures and people to geologic hazards. Therefore, there would be no impact.

PROPOSED PROJECT

Under the Proposed Project, no permanent structures or facilities would be constructed. There would be no new exposure of structures and/or people to geologic hazards. Thus, there would be no impact.

Impact 3.3-2: Construction activities associated with the project could result in increased erosion and short-term sedimentation of the Trinity River.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, the project would not be constructed. Therefore, no construction-related erosion or associated sedimentation of the Trinity River would occur, and there would be no impact. No significant impact was identified; therefore, no mitigation is required.

PROPOSED PROJECT

Implementation of the Proposed Project has a significant potential to increase erosion and subsequent short-term sedimentation of the Trinity River. The significance of erosion at each site would likely be influenced by the following:

- The extent that disturbed soils are exposed to flowing water;
- The extent that disturbed soils are exposed to energetic weather conditions; and
- The extent of soil compaction and associated runoff.

During or after excavation and other related construction activities, the highest rate of soil erosion would most likely occur near the margins of constructed features (e.g., feathered edges, side channels, and floodplains). At these locations, the exposure of fine-textured soils during and after construction would increase the potential for soil erosion and sedimentation. Impacts of turbidity levels specific to water quality degradation are analyzed below, in Section 3.5, Water Quality, and associated impacts to anadromous fisheries are analyzed in Section 3.6, Fishery Resources.

A majority of the rehabilitation activities would occur in close proximity to flowing water (Table 6) and could expose newly disturbed and/or stable sediments and other alluvial materials to flowing water. Specifically, in-channel activities would likely disturb areas in proximity to flowing water. Riverine work areas may generally be isolated so that flowing water does not reach these areas until they are “opened” to the river. Sediment exposed to flowing water has an increased potential to mobilize and be transported downstream resulting in impacts such as short-term increases in surficial and channel erosional processes; increases in turbidity levels downstream (varying distances); and changes to type, volume and character of deposition downstream. Monitoring results from previous TRRP channel rehabilitation projects (i.e., Hocker Flat, Canyon Creek, Indian Creek, and Lewiston-Dark Gulch) demonstrate that these impacts decrease rapidly once construction activities have ceased. However, downstream turbidity levels may remain elevated for a longer duration post-construction when winter high flows wash over newly disturbed areas

and seasonal fluctuations in hydrologic conditions further shape the disrupted area into a more stable geometry.

Table 6. Extent of Disturbance for the Proposed Project.				
IN-CHANNEL (ACRES)	RIVERINE (ACRES)	UPLAND (ACRES)	ROADS (MILES)	STAGING AREAS (ACRES)
1.21	4.46	3.12	0.15	1.29

Construction activities in the river and the uplands have the potential to significantly decrease soil cohesion and armoring, thus increasing soil exposure to energetic weather conditions and increasing the short-term potential for wind and water erosion. Increased wind and water erosion and subsequent downstream sediment transport in the Trinity River would occur if any soils were left exposed during the wet season (typically November through May) and other infrequent precipitation events (summer thunderstorms).

The use of heavy equipment for restoration activities would likely increase soil compaction; potentially causing surface water runoff. An increase in the volume of surface water runoff increases the potential for erosion. Thus, any significant increase in soil compaction would cause a potentially significant increase in erosion. Therefore, this impact is significant.

MITIGATION MEASURES

Construction activities associated with the project could result in increased erosion and short-term sedimentation of the Trinity River. Therefore, mitigation measures 4.3-2a and 4.3-2b described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.3-3: Implementation of the project would interfere with existing, proposed, or potential development of mineral resources.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, the project would not be constructed. Therefore, no interference with existing, proposed, or potential development of mineral resources would occur, and there would be no impact.

PROPOSED PROJECT

The development of mineral resources would be inhibited if a mining claim occupies a rehabilitation site, or if rehabilitation activities cause a dramatic increase of sediment levels in the Trinity River, causing placer mining downstream to be unworkable for a period of time. Overall, the Proposed Project could inhibit the development and extraction of mineral resources, including precious metals and aggregate resources within, and close to, rehabilitation sites. This would be a significant impact if such activities occurred or were planned for this stretch of the river. There are no current mining operations in the Wheel Gulch rehabilitation site and the BLM has no authorized operating plans for public lands along this reach of the Trinity River. Therefore the project would have less than significant impacts on the potential development of mineral resources.

MITIGATION MEASURES

Implementation of the project would interfere with existing, proposed, or potential development of mineral resources. Therefore, mitigation measures 4.3-2a, 4.3-2b, 4.3-3a, 4.3-3b, and 4.3-3c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

3.4 Water Resources

This section presents a discussion of the water resources known to occur in the Trinity River Basin in proximity to the proposed Wheel Gulch rehabilitation site. It evaluates potential impacts to water resources from implementation of the Proposed Project. Additional information about the affected environment for water resources is addressed in the Trinity River Master EIR (Section 4.4).

3.4.1 Affected Environment/Environmental Setting

3.4.1.1 Surface Water Hydrology

The Trinity River Basin encompasses approximately 2,965 square miles, about one-quarter of which is upstream of the TRD. Since 1960, the TRD has been the major determinant of the hydrologic conditions affecting the mainstem Trinity River, particularly in the 40-mile reach downstream of Lewiston Dam. Figure 2 shows the locations of the proposed rehabilitation sites along the Trinity River and its tributaries.

Prior to authorization of the 2000 ROD for the Trinity River Mainstem Fishery Restoration EIS, the average annual flow volumes released from the TRD into the Trinity River at Lewiston Dam were reduced from pre-dam conditions by as much as 90 percent. Consequently, channel form and function in this reach have been substantially altered. From 1962 to 1979, CVP diversions delivered nearly 90 percent of the water from the TRD to the Sacramento River for urban and agricultural use⁵. After 1979, river releases were increased from 110,000 to 340,000 acre-feet (af) annually, substantially increasing the available flow to in the Trinity River during the period between 1979 and 2002 (ROD flows). Although the 2000 ROD for the Trinity River FEIS/EIR established an annual volume based on water year types, litigation in federal court prevented implementation of the flow releases specified in the ROD in water years 2001-2004. Ultimately, the ROD was upheld, and the 2005 water year incorporated the schedule established by the TRRP in accordance with the ROD. This schedule is revised each year based on water year type.

3.4.1.2 Groundwater

Most usable groundwater in the mountainous Trinity River Basin occurs in widely scattered alluvium-filled valleys, such as those immediately adjacent to the Trinity River. These valleys contain only small quantities of recoverable groundwater and are therefore not considered a major source. A number of shallow wells adjacent to the river provide water for domestic purposes. These infiltration wells are often located near the river and may be affected by spring ROD flow releases (i.e., up to 11,000 cfs). Consequently, the TRRP in cooperation with Trinity County has implemented the Trinity River Potable Water and Sewage Disposal System Assistance Program (Assistance Program) to allow qualifying landowners to relocate, replace, modify, or otherwise

⁵ The percentage of the Trinity River diverted to the CVP is the percentage of total reservoir release, not the percentage of the inflow.

improve their potable water and sewage systems to better resist damage from ROD flows intended to benefit fisheries. The Assistance Program is a one-time only opportunity to receive financial assistance from the TRRP to ensure that ROD flows do not negatively effect existing infrastructure and site improvements (e.g., water sources and wastewater disposal systems). At the time the Trinity River Master EIR was completed, approximately 75 wells/septic systems had been improved and another 40 were planned for enhancement with TRRP funding. Additionally, there are a number of wells that are designed to be inundated, and often are, during the course of a water year.

3.4.1.3 Floodplain Hydrology and Hydraulics

The floodplain of the Trinity River is identified in FEMA's Flood Insurance Study, Trinity County, California, and Incorporated Areas (1996). Actual floodplain designations are in the accompanying Flood Insurance Rate Map (FIRM). The countywide FIRM map became effective on August 16, 1988, and was updated in 1996.

Within the 40-mile reach of the Trinity River below Lewiston Dam, the river has adjusted to a flow and sediment regime imposed in large part by the TRD. While the degree of berm development varies within the 40-mile reach, the river channel has been simplified and the channel has narrowed over time. In general, the aquatic habitat in this reach of the river lacks complexity and is typified by a recurring sequence of pools, runs, glides, and low-slope riffle habitat. Though the annual hydrograph is influenced by accretion flow from tributaries, the main influence on river flows is the Lewiston dam release. The closer to the dam, the greater its relative influence on river flows. In the vicinity of the dam (downstream to approximately Weaver Creek), the OHWM is equal to the Normal year ROD flow release of 6,000 cfs. Downstream of Weaver Creek, or certainly past Canyon Creek (in the Wheel Gulch vicinity), winter flows have the dominant influence on the OHWM. Winter peaks flows here frequently exceed spring ROD releases. For the Canyon Creek Suite of Sites environmental review (Reclamation and Regional Water Board 2006), the OHWM in this region was estimated at 6,600 cfs. For this document, the OHWM was field verified during the wetland delineation and that value is represented on all figures. The verified OHWM was at an elevation greater than the modeled 6,600 cfs line. The timing of peak flow and ramping-down releases under the ROD corresponds to the typical annual period of peak snowmelt floods in the watershed for each of the water year classes described in the ROD. Additional information on morphologic processes and Trinity River flows is provided in Sections 4.3 and 4.4, respectively, of the Trinity River Master EIR.

The best available hydraulic analysis for the Trinity River is the Trinity River Hydraulic Flow Study: North Fork Trinity to Lewiston Dam, developed by the California Department of Water Resources (DWR) for the TRRP using flow data from the 2005 Bureau of Reclamation study (California Department of Water Resources 2007). The DWR study summarizes flow modeling of the mainstem Trinity River from Lewiston Dam to its confluence with the North Fork Trinity River, 40 miles downstream. The model estimates water-surface elevations (WSEs) based on a controlled flow release of 11,000 cfs from Lewiston Reservoir with 10-year and 100-year spring tributary flows. The TRRP has defined the 11,000 cfs release plus 100-year spring tributary flow event as the Maximum Fishery Flow (MFF) for project planning and risk assessment purposes. Using the well grant assistance program, the TRRP has funded the structural improvement and relocation (or otherwise addressed) problems with existing structures within the MFF inundation zone to allow this maximum ROD flow to be implemented.

3.4.2 Environmental Consequences/Impacts and Mitigation Measures

3.4.2.1 Methodology

Hydraulic models allow the preliminary evaluation of risks to Trinity River properties by comparing the WSE of the Proposed Project's design conditions with the existing conditions. The comparison indicates how the features of the Proposed Project could affect the base flood elevation (BFE) estimated by FEMA for the 100-year flood. One of the design criteria for the Proposed Project was developed to ensure that none of the proposed activities would result in an obstruction to flow or an increase in the BFE of more than 12 inches.

3.4.2.2 Significance Criteria

The Proposed Project would have a significant impact related to water resources if one of the following conditions occurred:

- It could subject people, structures, or other resources to substantial changes in flood hazards; or
- It would result in modification of groundwater resources.

The Proposed Project would result in a significant impact related to hydraulics if one of the following conditions occurred:

- The base floodwater surface elevation would increase by more than 1 foot;
- There would be a substantial alteration of the existing drainage pattern of a site or area, including the alteration of the course of a stream or river, or a substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on- or off-site; or
- It would expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.

The Proposed Project would result in a significant impact to groundwater if one of the following conditions occurred:

- There would be a long-term decline in groundwater elevations (or a net reduction in groundwater storage) due to interference with recharge;
- There would be detectable land subsidence;
- Any water quality standards or waste discharge requirements intended to protect groundwater quality would be violated; or
- There would be a detectable degradation of groundwater quality.

Groundwater impacts were assessed at the scale of a groundwater basin or sub-basin. The significance of declining (or increasing) water levels depends in part on the duration and permanence of the impact. Because groundwater elevations fluctuate naturally due to changes in rainfall, short-term changes in groundwater elevations are not considered significant impacts.

3.4.2.3 Impacts and Mitigation Measures

Table 7 summarizes the potential water resources impacts that could result from construction of the project.

Table 7. Summary of Potential Water Resource Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.4-1. Implementation of the project could result in a temporary or permanent increase in the BFE.		
No impact	Less than significant	Not applicable ¹
Impact 3.4-2. Implementation of the project could result in a permanent decline in groundwater elevations or a permanent change in groundwater quality.		
No impact	Less than significant	Not applicable ¹
Impact 3.4-3. Implementation of the project would expose people or structures to a significant risk of injury, death, or loss involving flooding or erosional processes.		
No impact	Less than significant	Not applicable ¹

¹ Because this potential impact is less than significant, no mitigation is required

Impact 3.4-1: Implementation of the project could result in a temporary or permanent increase in the base floodwater elevation.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, the Trinity River floodplain would not be altered and the existing BFEs would not change because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

The elevation and extent of the floodplain of the Trinity River would be modified through the activities associated with the Proposed Project, as described in Chapter 2. The Proposed Project would be consistent with the overall project objectives and design criteria established by the TRRP and the Regional Water Board and the hydraulics analysis indicates that removing all the excavated material from the riverine rehabilitation areas and placing it as coarse sediment within the channel or above the BFE in upland activity areas would not result in an increase in the FEMA BFE. Therefore, the impact would be less than significant.

Impact 3.4-2: Implementation of the project could result in a permanent decline in groundwater elevations or permanent changes in groundwater quality.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no effects on local groundwater levels would occur because the project would not be constructed. Therefore, there would be no impact. No significant impact was identified; therefore, no mitigation is required.

PROPOSED PROJECT

The displacement of channel and floodplain materials has only a minimal potential to change the groundwater hydraulics within the boundaries established for the rehabilitation site. Groundwater table elevations and water volumes in nearby off-channel wetlands would not be affected because groundwater elevations in these areas are associated with river stage. The tendency of the surface water-groundwater system to move to equilibrium conditions and the overall absence of impacts to the regional driving mechanisms of groundwater recharge (seasonal precipitation and Trinity River flow regimes) suggest that no long-term impacts on water table elevations would occur. Therefore, this impact would be less than significant.

Impact 3.4-3: Implementation of the project would expose people or structures to a significant risk of injury, death, or loss involving flooding or erosional processes.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no people or structures would be exposed to additional flood risks because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

The Proposed Project would not result in activities intended to increase the BFE at the rehabilitation site. Activities intended to modify the bed and banks of the Trinity River could have ancillary impacts to the bed and banks downstream. To date, the TRRP staff has identified several locations downstream of activity areas where the bank of the river appears to be responding to post-ROD changes in the flow and sediment regime.

While the fundamental objective of the activities associated with the Proposed Project is to reestablish the alluvial features of the river, isolated instances of bank erosion may result in the loss of river bank and associated vegetation or, to a lesser extent, constructed features such as wells, utilities, and landscape features. In addition to Assistance Program for water and sewer, bank stabilization measures, specifically the bio-engineering measures described in Appendix A, are intended to address these impacts on a case-by-case basis, consistent with all federal, state, and local requirements. In concert with the ongoing TRRP program and the activities described in Chapter 2 and Appendix A, the Proposed Project is designed to avoid exposing people or structures to a significant risk of injury, death, or loss involving flooding. Therefore, this impact would be less than significant.

3.5 Water Quality

This section describes water quality conditions in the vicinity of the Wheel Gulch rehabilitation site along the Trinity River. It also evaluates potential impacts to water quality from implementation of the Proposed Project. The principal components of the TRD are Lewiston Dam, Trinity Dam, and the facilities that divert runoff from the Trinity River watershed to the Sacramento River Basin. Prior to full implementation of the ROD, up to 90 percent of the natural Trinity River flow was diverted, which substantially altered water quality in the Trinity River, particularly its temperature and sediment regimes. Additional information on the affected environment as it relates to water quality is provided in the Trinity River Master EIR, Section 4.5, Water Quality. Information related to this topic is also provided in the Trinity River Master EIR in Section 4.4, Water Resources, and Section 4.6, Fisheries.

3.5.1 Affected Environment/Environmental Setting

The releases from the TRD influence flow volumes and velocities, water quality, and channel geometry downstream of Lewiston Dam. These influences are particularly important to water quality parameters such as temperature, turbidity, and suspended sediments. A dramatic decrease in the abundance of Trinity River coldwater fishes has taken place since the TRD began operation (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999). Water quality in the Trinity River may also be affected by acid mine drainage from abandoned mines and past mining activities, sediment releases from land use practices associated with unstable soils and decomposed granite (e.g., roads, vegetation management, and subdivisions), septic tanks, aboveground and

underground storage tanks, and lumber mills (North Coast Regional Water Quality Control Board 2005).

The Proposed Project is subject to compliance with the Water Quality Control Plan for the North Coast Region (Basin Plan). The beneficial uses for the Trinity River defined in the Basin Plan are listed in Table 4.5-1 of the Trinity River Master EIR. In addition to municipal and domestic water supply, the beneficial uses affected by the water quality of the Trinity River are primarily those associated with supporting high-quality habitat for fish. Recreation (contact and non-contact) is another important beneficial use potentially affected by various water quality parameters (e.g., sediment and temperature). The Basin Plan identifies both numeric and narrative water quality objectives for the Trinity River. Table 4.5-2 in the Trinity River Master EIR summarizes the water quality objectives for each of the categories that have been established by the Regional Water Board to protect designated beneficial uses.

Temperature

The influence of Trinity Lake and Lewiston Reservoir on downstream conditions diminishes with distance. In general, the greater the release volumes from Lewiston Dam, the less susceptible the river's temperature is to other factors. Releases from Trinity Dam are generally cold (42 to 47 F). These temperatures are transmitted through Lewiston Reservoir to the Trinity River below Lewiston Dam.

Sediment

In 1992, the EPA added the Trinity River to its list of impaired rivers under the provisions of Section 303(d) of the CWA in response to a determination by the State of California that the water quality standards for the river were not being met due to excessive sediment. In 2001, the EPA established a TMDL for sediment in the river. The Regional Water Board has continued to identify the Trinity River as impaired in subsequent listing cycles. The primary adverse impacts associated with excessive sediment in the Trinity River pertain to degradation of habitat for anadromous salmonids. The restriction of streamflows downstream of the TRD has greatly contributed to the impairment of the Trinity River below Lewiston Dam (U.S. EPA 2001). With implementation of ROD flows and placement of coarse sediment in the Lewiston area, local reductions in fine sediment in the river bed have been observed and fish spawning has increased. Recent measurements to compare in-channel fine sediment concentrations pre- and post-ROD flows have indicated that gravel quality and river bed oxygen permeability have increased through the 40-mile reach. The percent fines measured in Trinity River samples at 2001 sites revisited in 2010, was measurably less than found in 2001 (Graham Matthews and Associates 2010).

Turbidity

The Basin Plan (North Coast Regional Water Quality Control Board 2007) contains water quality objectives to protect present and probable future beneficial uses of water and to protect existing high quality waters of the State. Water quality objectives form the basis for establishment of waste discharge permits. The Basin Plan contains a water quality objective for turbidity that applies to the Trinity River, including the Wheel Gulch rehabilitation site. The water quality objective for turbidity states, "Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon issuance of discharge permits or waiver thereof." An allowable zone of turbidity dilution is an area within water where turbidity discharges may

increase the naturally occurring turbidity level by more than 20 percent. An allowable zone of turbidity dilution may only be granted in waste discharge permits if all beneficial uses (identified in Table 4.5-1 of the Trinity River Master EIR) remain protected.

The turbidity level in a water body is related to the concentration of suspended solids, which are predominantly less than 0.5 millimeter (mm) in diameter. Water clarity has historically been measured as the concentration of suspended solids (mg/l) or more recently as turbidity, which is measured in nephelometric turbidity units (NTUs). Turbidity generally does not cause acute adverse affects to aquatic organisms unless concentrations are extremely high (Lloyd 1985). Noggle (1978) estimated an acute lethal concentration causing 50 percent mortality of juvenile coho salmon at 1,200 mg per liter (mg/L) during summer (approximately 900 NTU). At relatively high levels, suspended solids can adversely affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly (e.g., ability to feed) or indirectly (e.g., impact to food supply or spawning substrate) (Alabaster and Lloyd 1980). However, at lower levels, effects of turbidity last as long as the perturbation in clarity and are limited to reducing reactive distance to prey as well as predation risk. For instance, if periods of increased turbidity occur during periods of merganser (fish predator) activity, the turbidity would probably be used as protective cover that would provide an overall benefit to the fish (Harvey, pers. comm. 2009). In the lab, benthic feeding success of coho salmon in water with turbidity levels as high as 100 NTU has been found to be at least 70 percent of their feeding success in clear water (Harvey and White 2008). During low flow restoration activities, adult salmon have been observed using the more turbid sections of the river (10 to 15 NTU) as protective cover during their spawning migrations through the project areas (Gutermuth, pers. obs.). Finally, the Alaska Department of Environmental Conservation (2008) has determined that turbidity levels for protection of aquaculture in flowing conditions may not exceed 25 NTUs above natural conditions, and that this level is protective of fishery resources.

The Trinity River is typically very clear with natural background turbidity levels in the range of 0 to 1 NTU during summer low flow conditions. Due to the very low background concentrations during the summer, turbidity levels immediately downstream of the most carefully planned and implemented in-channel restoration activities will likely be increased by more than 20 percent above background levels, and plumes extending downstream of restoration activities may be visible. However, short-term increases in turbidity levels that occur during permitted restoration activities are generally not considered to be biologically detrimental to aquatic organisms; they are short in duration and fish are able to move away from the activity area. Reduction of these turbidity levels to within 20 percent above background is very expensive if not impossible using BMPs. Monitoring turbidity increases during implementation of previous Trinity River restoration projects has shown that periods of increased turbidity are brief (generally less than 24 hours); turbidity levels have not exceeded 50 NTU at monitoring points located 500 feet downstream and beneficial uses were still protected. In addition, the quantity of fine sediment introduced to the river during low flow restoration activities is typically small.

In contrast, sediment particles between 0.5 mm and 8.0 mm in diameter tend to settle more quickly. These larger sediment particles can decrease the permeability of the channel bed and cover spawning sites, causing negative impacts on the aquatic community (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999). However, so long as the larger sediment particles are only

mobilized into the water column from completed restoration activity areas and off-site sources during high flows, the larger sediment particles will be transported far down-river or deposited on adjacent alluvial features (e.g., floodplains) where these particles contribute to riparian form and function (e.g., plant growth).

Post construction monitoring data from the Indian Creek site and the Canyon Creek suite of sites indicate that downstream turbidity levels may be increased by overland flow during the initial high flow events that occur following completion of construction activities. During high flow spring-time releases from Lewiston Dam (e.g., clear water released from the dam during ROD flows), turbidity levels may be increased by more than 20 percent at monitoring locations 500 feet or more downstream of recently completed channel rehabilitation sites. However, when the high flows are caused by natural storm water runoff in the Trinity River basin, and the river is already carrying a substantial sediment load (e.g., turbidity greater than 40 NTUs), background levels are generally not increased by more than 20 percent at monitoring locations downstream of recently completed activities. Furthermore, during natural high flow events the relative addition of fine sediment from recently completed channel rehabilitation sites is minimal compared to the sediment load already being transported by the river (Gutermuth, pers. obs.). In both of these high flow scenarios, impacts to the Trinity River from the addition of TRRP related fine sediment is minimal because the materials that increase turbidity levels are maintained in suspension and transported downriver or deposited on the floodplain in the same manner as fine sediment from other sources. In both low flow and high flow scenarios, as long as project related turbidity level increases are limited in concentration and duration, impacts to aquatic life and beneficial uses are expected to be minimal in comparison to the long-term aquatic habitat benefits that these projects are designed to create.

Mercury

Another source of potential water quality impairment of the Trinity River is mercury. Although the river is not listed under Section 303(d) of the CWA for mercury impairment, elevated concentrations have been found in water, sediment, and biota (i.e., fish, frogs, and predatory aquatic insects) in the upper Trinity River Basin upstream of Lewiston Dam (U.S. Geological Survey, unpublished data). The general significance of mercury as a biological toxin and the likely sources of mercury in regional and local contexts are discussed in Section 4.13, Hazards and Hazardous Materials, of the Trinity River Master EIR.

Early in the planning phases for the mechanical channel rehabilitation projects along the Trinity River, the TRRP recognized the possibility that mercury in placer tailings and/or fluvial fine sediments could be disturbed and mobilized by the rehabilitation activities. USGS monitoring suggests that the alluvial materials that are subject to project-related disturbance contain levels of mercury well below the numeric criteria promulgated by the EPA for priority toxic pollutants. Overall, the USGS's assessment of site-specific methylation data suggests that the bioavailability of mercury in the Trinity River and its floodplain is not presently high and would not likely be modified by the Proposed Project.

3.5.2 Environmental Consequences/Impacts and Mitigation Measures

3.5.2.1 Methodology

For the past 6 years, the TRRP has implemented a number of channel rehabilitation projects and completed similar activities to those proposed at Wheel Gulch. While the type and intensity of

these activities varies, the effects of these activities on water quality in the Trinity River are well understood. Impacts on water quality were determined by analyzing whether the proposed modification of the physical features and biological conditions at the Wheel Gulch rehabilitation site would comply with Basin Plan objectives for the Trinity River.

3.5.2.2 Significance Criteria

The Proposed Project would result in significant adverse impacts if it would result in any of the following:

- Violations of state or federal numerical water quality standards or state or federal narrative water quality objectives;
- Substantial degradation of water quality, such that existing beneficial uses are precluded specifically because of degraded water quality;
- Violation of any waste discharge requirements and/or Section 401 Certification conditions;
- Substantial alterations of the course of a stream or river in a manner that would result in substantial erosion or siltation onsite or offsite; or
- Violation of site-specific temperature objectives for the Trinity River contained in the Water Quality Control Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2007).

3.5.2.3 Impacts and Mitigation Measures

Table 8 summarizes the potential water quality impacts resulting from construction and operation of the project.

Table 8. Summary of Potential Water Quality Impacts for the No-Project and Proposed Project Alternatives.		
No-Action Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.5-1. Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.		
No impact	Significant	Less than significant
Impact 3.5-2. Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction.		
No impact	Significant	Less than significant
Impact 3.5-3. Construction of the project could cause contamination of the Trinity River from hazardous materials spills.		
No Impact	Significant	Less than significant
Impact 3.5-4. Construction of the project could result in increased stormwater runoff and subsequent potential for erosion.		
No impact	Less than significant	Not applicable ¹
Impact 3.5-5. Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.		
No impact	Significant	Less than significant

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.5-1: Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related short-term increases in turbidity or total suspended solids levels would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Under the Proposed Project, the activities described in Chapter 2 would temporarily increase turbidity and total suspended solids in the Trinity River. The incorporation of design elements and construction criteria described in Appendix A (e.g., in-river construction, water pollution prevention, and construction schedules) are intended to limit the total addition of fine suspended sediment to the Trinity River. Additionally, river's edge and in-channel construction activities would be staged to minimize the potential turbidity effects. During in-channel construction activities, increases in turbidity levels could occur because of excavation of alluvial material. Connection of isolated and newly constructed side channels or split flow channels with the mainstem (e.g., the first flush of flowing water) would result in short-term increases in turbidity levels as this material is removed from and/or redistributed within the channel. Fine sediments may be suspended in the river for several hours following construction activities. The extent of downstream sedimentation would be a function of the size and mobility of the substrate. For example, fine-grained sediments like silts and clays can be carried several thousand feet downstream of construction zones, while larger-sized sediments like coarse sands and gravels tend to drop out of the water column within several feet of the construction zone. Collectively, the activities included in the Proposed Project could result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially violate the Basin Plan objectives for turbidity in the Trinity River. Short-term increases in turbidity and suspended solids levels during construction would be a significant impact.

MITIGATION MEASURES

Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels during construction. Therefore, mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.5-2: Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no short-term increases in turbidity or total suspended solids levels would occur following construction because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

The Proposed Project riverine activities described in Chapter 2 emphasize in-channel excavation and placement of alluvial materials, selective removal of fossilized riparian berms reconnecting the river's floodplain with the river at intermediate flows (between 450 and 6,000 cfs), and enhancing

side-channels that function under various flows. The character and location of alluvial features associated with the Trinity River were modified by the construction and operation of the TRD in response to changes in the flow and sediment regimes, particularly the loss of scouring associated with peak flows. Modification or reconstruction of these alluvial features at strategic locations would promote the river processes necessary for the restoration and maintenance of Trinity River alternate bars, thereby enhancing salmonid rearing habitat. These activities would also increase the habitat available for salmonid rearing under various flows.

Implementing the Proposed Project would increase turbidity and total suspended solids in the river and fluvial surfaces following construction. Following construction, increases in turbidity levels would occur when newly disturbed areas are exposed to elevated river stages during high river flows. Fine sediments may be suspended in the river for several hours following such exposure and erosion. The extent of downstream sedimentation would be a function of the rainfall intensity and/or instream flow velocity, as well as the particle size of exposed sediments. Lower intensity rainfalls would be unlikely to mobilize fine sediments because the precipitation would be absorbed. If fine sediments are mobilized by flow over newly disturbed areas, they could be carried several thousand feet downstream of the activity areas, while larger sized sediments, such as sands and gravels, would tend to drop out of the water column within several feet of the activity areas.

Post-construction exposure of sediments to rainfall and/or flows would result in short-term increases in turbidity and suspended solids concentrations in the water column that could potentially be in violation of the Basin Plan turbidity objective for the Trinity River. A short-term increase in turbidity and suspended solids levels following construction would be a significant impact.

MITIGATION MEASURES

Construction of the project could result in short-term, temporary increases in turbidity and total suspended solids levels following construction. Therefore, mitigation measures 4.5-2a, 4.5-2b, and 4.5-2c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.5-3: Construction of the project could cause contamination of the Trinity River from hazardous materials spills.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related contamination of the Trinity River from spills of hazardous materials would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Construction staging activities could result in a spill of hazardous materials (e.g., oil, grease, gasoline, and solvents) into the Trinity River. In addition, operation of construction equipment in or adjacent to the river would increase the risk of a spill of hazardous materials into the river (e.g., from leaking of fluids from construction equipment). Spills of hazardous materials into or adjacent to the Trinity River could degrade water quality and have deleterious effects on salmonids of any life stage that are in close proximity to construction activities. Section 3.12, Hazards and Hazardous Materials, evaluates potential effects associated with exposing the public to hazards associated with

the transportation and use of hazardous materials at the rehabilitation site. Additional requirements outlined in Appendix A (Design Elements and Construction Criteria) would be incorporated into the project description to reduce the potential impact. However, construction activities could result in a spill of hazardous material, which would be a significant impact.

MITIGATION MEASURES

Construction of the project could cause contamination of the Trinity River from hazardous materials spills. Therefore, mitigation measures 4.5-3a, 4.5-3b, and 4.5-3c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.5-4: Construction and maintenance of the project could result in increased stormwater runoff and subsequent potential for erosion.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no increases in stormwater runoff and the potential for subsequent erosion because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Implementation of the Proposed Project, including those measures described in Appendix A (Design Elements and Construction Criteria), would not result in an increase in impervious surface areas (e.g., structures and roadway approaches) that could subsequently generate additional stormwater runoff and potential for erosion. Grading activities, including the use of rippers during grading activities, are expected to eliminate surface runoff during the first year after construction. Access routes under these alternatives would be located on gentle terrain and would require minimal grading. The impact associated with runoff and erosion would, therefore, be less than significant.

Impact 3.5-5: Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no degradation of Trinity River beneficial uses would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Under the Proposed Project, significant impacts to beneficial uses of the Trinity River could occur in the following categories of water quality objectives listed in the Basin Plan:

- Sediment
- Toxicity
- Turbidity
- Settleable material
- Suspended material
- Chemical constituents.

Although the design elements and construction methods described in Appendix A are intended to minimize these impacts, the activities associated with construction, particularly in riverine and in-channel activity areas, would result in significant impacts.

MITIGATION MEASURES

Construction and maintenance of the project could result in the degradation of Trinity River beneficial uses identified in the Basin Plan. Therefore, mitigation measures identified above in Sections 4.5-1, 4.5-2, 4.5-3, and 4.5-4 and described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

3.6 Fishery Resources

This section describes the fishery resources and aquatic habitats that are known to occur within the boundaries of the site and evaluates the impacts of the Proposed Project on these resources. The Trinity River Flow Evaluation Study (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999) determined that lack of spawning and rearing habitat for juvenile salmonids is likely a primary factor in limiting the recovery of salmonid populations in the Trinity River. The Proposed Project is specifically designed to increase the abundance of habitat for Trinity River salmonids by reconnecting the river with its floodplain, increasing channel sinuosity, and providing shallow low velocity habitats in close proximity to the river's edge. The discussion of fisheries resources is based on a focused literature review, informal consultation with resource agencies, and observations made during site visits. These resources are discussed in the Trinity River Master EIR (Section 4.6 and Appendix G). The Magnuson-Stevens Fishery Conservation and Management Act (MSA) and Essential Fish Habitat (EFH) are also described in the Master EIR (Section 4.6).

3.6.1 Affected Environment/Environmental Setting

3.6.1.1 Native Anadromous Fish Species

The native anadromous salmonid species of interest in the mainstem Trinity River and its tributaries are chinook salmon (*Oncorhynchus tshawytscha*), coho salmon (*Oncorhynchus kisutch*), and steelhead (*Oncorhynchus mykiss irideus*). There are two spawning races of chinook salmon (spring- and fall-run) and two spawning races of steelhead (winter- and summer-run). The life histories and fresh water habitat requirements of these species and their distinct spawning populations are described in Appendix G of the Trinity River Master EIR.

3.6.1.2 Resident Native and Non-Native Fish Species

Resident native fish species found in the Trinity River Basin include game fish such as rainbow trout (*Oncorhynchus mykiss*) and non-game fish such as speckled dace (*Rhinichthys osculus*), Klamath smallscale sucker (*Catostomus rimiculus*), Klamath River lamprey (*Lampetra similis*), three-spined stickleback (*Gasterosteus aculeatus*), coast range sculpin (*Cottus aleuticus*), and marbled sculpin (*Cottus klamathensis*). The abundance of resident native species and the factors affecting their abundance within the basin are not well understood; however, all these species evolved and existed in the Trinity River prior to the TRD and are presumably adapted to those conditions.

Non-native fish species found in the Trinity and Klamath River Basins include American shad (*Alosa sapidissima*), brown bullhead (*Ameiurus nebulosus*), green sunfish (*Lepomis cyanellus*), brown trout (*Salmo trutta*), and brook trout (*Salvelinus fontinalis*) (United States Fish and Wildlife Service, unpublished data). American shad occur in the lowermost portions of the Trinity River Basin, but are primarily found in the lower Klamath River Basin. Anadromous brown trout were propagated in the Trinity River Salmon and Steelhead Hatchery (TRSSH) until 1977, when this practice was

discontinued because of small numbers and the lack of anadromous characteristics of fish entering the hatchery. Currently, brown trout are largely limited to the upper portions of the river, although some brown trout exhibit anadromous characteristics. Brook trout provide a significant sport fishery in the tributary streams and high-elevation lakes of the Trinity River Basin. Its life cycle and habitat requirements are similar to those of brown trout. The structure and abundance of populations of these species in the Trinity and lower Klamath River Basins are unknown.

3.6.1.3 Special-Status Species

Special-status fish species with the potential to occur at rehabilitation sites in the Trinity River are discussed in the Trinity River Master EIR (Section 4.6 and Appendix G) and are summarized below.

COHO SALMON

The Southern Oregon/Northern California Coasts (SONCC) Evolutionarily Significant Unit (ESU) of coho salmon was listed as threatened pursuant to the federal ESA on April 25, 1997. This listing includes coho salmon from the Trinity River and Klamath River Basins. Critical habitat for the SONCC ESU coho salmon was designated on May 5, 1999; in the Trinity River Basin, designated critical habitat for this species consists of the water, substrate, and adjacent riparian zone of those estuarine and riverine reaches (including off-channel habitats and accessible tributaries) downstream of Lewiston Dam (CFR Vol. 64, No. 86, May 5, 1999). The 2000 Biological Opinion on the Trinity River Mainstem Fishery Restoration EIS (National Marine Fisheries Service 2000) found that the program *“is not likely to jeopardize the continued existence of the [SONCC ESU] coho salmon”,* and *“is not likely to destroy or adversely modify critical habitat for the [SONCC ESU] coho salmon.”*

Both Reclamation’s 2000 Biological Assessment and NMFS’ subsequent 2000 Biological Opinion acknowledged that construction at channel rehabilitation projects would not occur “within the wetted channel.” However, in-channel work would occur during direct placement of gravel for coarse sediment additions. After considerable restoration planning and design work by TRRP staff, NMFS with support from the TMC now considers in-channel work a necessary component to successfully carry out and achieve program goals and objectives as detailed in the ROD. The TRRP concluded that reinitiation of formal consultation under Section 7 of the ESA was not warranted because effects to SONCC coho salmon were consistent with and not likely to rise above those that were considered in the original 2000 Biological Opinion. In May 2006, NMFS concurred that reinitiation of formal consultation was not warranted if bank rehabilitation activities were authorized within the wetted channel (National Marine Fisheries Service 2006).

STEELHEAD

The Klamath Mountains Province (KMP) ESU of steelhead, which includes stocks from the Trinity River, was proposed for federal listing as threatened on March 16, 1995; however, on February 7, 1998, NMFS determined that the population did not warrant threatened status, but that it did warrant candidate status (as defined by NMFS). Subsequent information on the KMP ESU steelhead was evaluated and NMFS made a final listing determination that the ESU did not warrant listing in April 2001 (CFR Vol. 66, No. 65). The summer-run population segment of this ESU remains a California Species of Special Concern, as well as a USFS sensitive species (Moyle et al. 1995; U.S. Fish and Wildlife Service 1995).

CHINOOK

Similarly, in a 1998 status review of all west coast chinook salmon stocks (Myers et al. 1998), the Upper Klamath-Trinity Rivers ESU chinook salmon was determined to not warrant listing as a

threatened or endangered species. However, spring-run chinook salmon within the Klamath-Trinity Basin is a California Species of Special Concern (Moyle et al. 1995).

PACIFIC LAMPREY

The Pacific lamprey, along with three other lamprey species, was petitioned for federal listing in 2003. On December 27, 2004, the USFWS announced that the petition along with additional information does not present substantial scientific or commercial information indicating that listing of these species may be warranted (CFR Vol. 64, No. 86, December 27, 2004).

LOCAL AQUATIC HABITAT

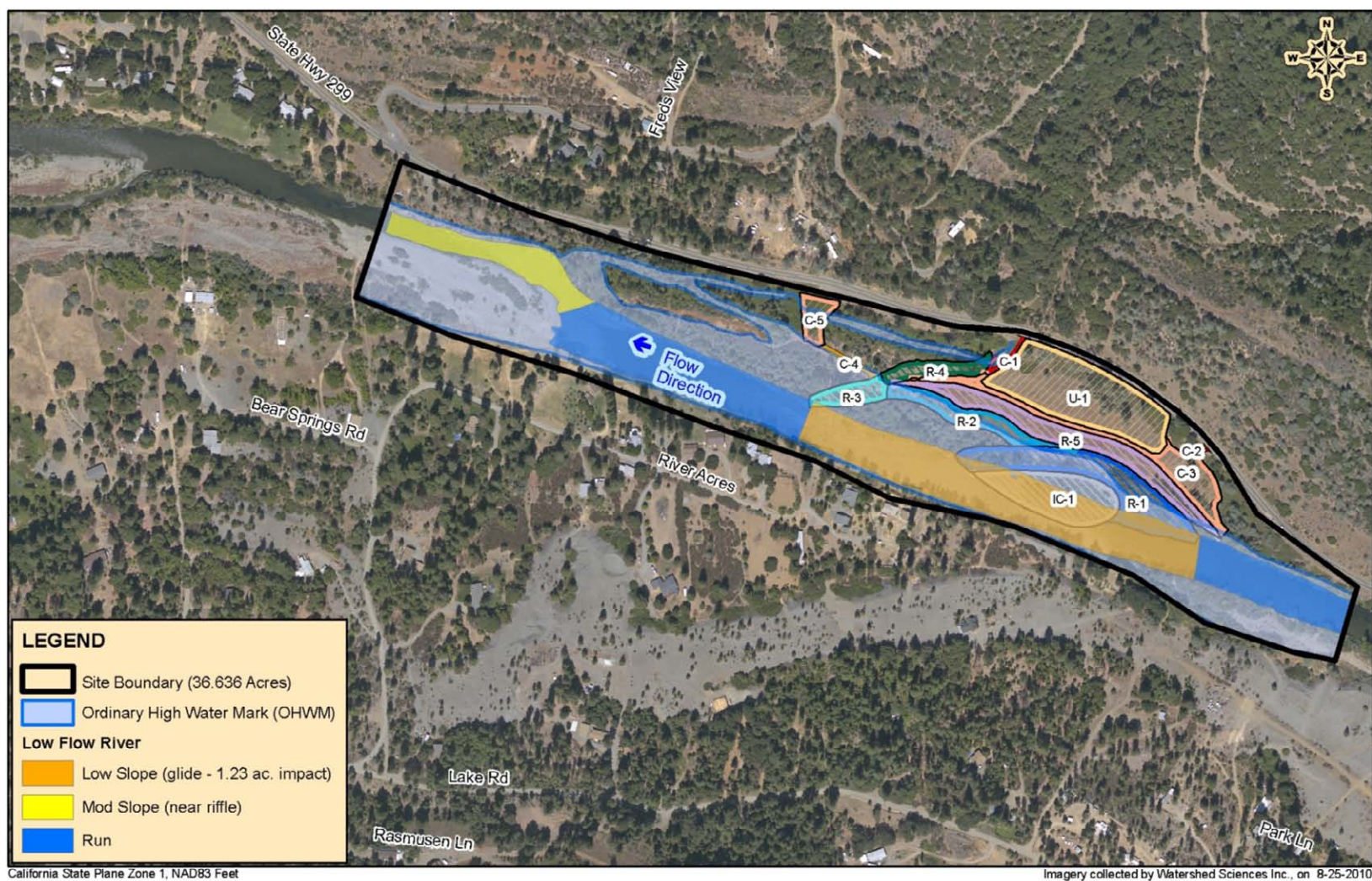
The aquatic environment in the general vicinity of the site is characterized by a sequence of aquatic mesohabitat types. Each of these habitat types consists of distinctive combinations of depth, water velocity, water temperature, cover, substrate composition (bedrock, cobble, gravel, sand, silt, etc.), and adjacent riparian vegetation. Figure 5 illustrates aquatic mesohabitat as qualitatively defined by the USFWS in a 2002 survey. In general, moderate slope (near riffle) and low slope (glide) areas equate to faster reaches than deep pools, and runs, which are intermediate in depth. A low slope area may alternatively be named a glide and moderate slope areas (near riffle) often include aerated waters. Riparian vegetation directly adjacent to the river is referred to as shaded riverine aquatic (SRA) habitat and is included as a component of designated critical habitat for coho salmon, as well as a component of EFH for both coho and chinook salmon.

The existing plane-bed channel at the Wheel Gulch rehabilitation site is largely homogeneous in nature. This makes nearly the entire river channel hydraulically uniform. The only areas with low velocity and cover sufficient to allow juvenile fish to rest and forage for food are located at the edges of the channel along the wetted edge. During Trinity River's low-flow period, a minimal amount of habitat is available.

Inundated floodplain habitat starts to be available at releases of approximately 6,600 cfs, the OHWM for the reach (Figure 4). Until that point, the project area experiences only minimal inundation on the north side of the river and none on the south side. Given the regulated hydrograph, the project area infrequently experiences flows high enough or long enough to provide beneficial salmonid rearing habitat.

Suitable spawning habitat for anadromous salmonids occurs in most riffles, particularly in low-slope riffles and tail-outs of pools and deep run/glide habitats. Spawning habitat quality and quantity are limited in the Wheel Gulch project reach. Salmon spawner surveys in the upper Trinity River conducted annually by the CDFG (in cooperation with the YT, USFWS, and USFS) report that the greatest concentration of chinook and coho salmon spawning occurs in the upper survey sections, which range from Lewiston Dam to Old Lewiston Bridge and Old Lewiston Bridge to Bucktail Bridge. These are upstream of the Wheel Gulch rehabilitation site; however, the Wheel Gulch site also provides some suitable habitat for salmonid rearing. Salmon redds were observed in the reach of the river adjacent to the rehabilitation site between September 20, 2010 and November 29, 2010 (USFWS 2010).

Juvenile coho are expected to utilize suitable habitats in the 40-mile reach of the mainstem Trinity River below Lewiston Dam year-round (Glase, pers. comm. 2002). Pool habitat associated with boulders and LWD is particularly preferred by rearing coho salmon (Hassler 1987; Sandercock 1991; Moyle 2002).




 Prepared for the Bureau of Reclamation Trinity River Restoration Program		TRINITY RIVER RESTORATION PROGRAM WHEEL GULCH REHABILITATION SITE ENVIRONMENTAL ASSESSMENT/INITIAL STUDY				North Wind, Inc. 1425 HIGHAM ST. IDAHO FALLS, ID 83402 WEB: www.northwind-inc.com Phone: (208) 528-8718 FAX: (208) 528-8714
DATE: 02-09-2011		0 175 350 525 700 Feet		SCALE: 1:5,500		

Figure 5. Aquatic Habitat and Potential Project Impacts at the Wheel Gulch Rehabilitation Site.

In 2003, a radio-telemetry study of migration and behavioral thermoregulation of adult spring-run chinook salmon was conducted in the upper Trinity River (Marine and Lyons 2004). Tagged fish used available run and glide habitats that were typically large (surface area) and offered depths up to 4 feet. These habitats held fish for longer periods than other portions of the study reach.

Adult summer/fall-run steelhead migrate to, and hold in, the deeper pools, runs, and glides along the river between April and January (Leidy and Leidy 1984; Moyle 2002). These fish are active throughout the salmon spawning season, and migrate to the upper-most river reaches and into tributaries to spawn from February through April. Winter-run steelhead migrate to spawning grounds from November through April and spawn during the same time as the summer/fall run. Suitable steelhead spawning habitat occurs in riffles throughout the river. Suitable juvenile steelhead rearing habitat also occurs in the river. Fry and juvenile steelhead of both runs may be expected in the riffle and run/pool habitats year-round, especially those associated with abundant SRA and large cobble/boulder habitat, including LWD (Hampton 1988; Moyle 2002).

HABITAT CONDITIONS

Construction and operation of the TRD, combined with watershed erosion, large-scale gold dredging, and other human-caused disturbances, have resulted in major changes in habitat conditions in the Trinity River. Factors that have resulted in adverse effects on fish habitat include:

- Obstruction to river reaches upstream of the TRD (Lewiston Dam);
- Changes to quantity and timing of flows;
- Changes in channel geomorphology;
- Changes in substrate composition caused by the addition of fine sediments and restriction of gravel recruitment; and
- Changes in water temperature.

These factors are addressed in other sections of this document, specifically Section 3.3, Geology, Fluvial Geomorphology, and Soils; Section 3.4, Water Resources; and Section 3.5, Water Quality, as well as in the respective sections of the Trinity River Master EIR. The relationship between these factors and fish is summarized in the following paragraphs.

The TRD dams blocked access to 59 miles of chinook salmon habitat, 109 miles of steelhead habitat, and an undetermined amount of coho salmon habitat (U.S. Fish and Wildlife Service 1994). Much of this habitat is thought to have been prime spawning and rearing habitat. In the case of chinook salmon, it represented about 50 percent of the suitable spawning habitat in the upper Trinity River Basin. As early as 1980, the overall decline in spawning habitat was estimated at 80 to 90 percent (U.S. Fish and Wildlife Service 1980). Furthermore, the blocking of salmon access to upstream reaches greatly reduced the diversity of habitats available to salmon in the Trinity River.

For the first 21 years of TRD operations (1964 to 1985), Lewiston Dam releases to the Trinity River averaged only 21 percent of the natural river inflow. The reduction in flows led to a reduction in habitat and declining quality in the remaining habitat. For example, spawning habitat losses in the mainstem Trinity River below the Grass Valley Creek confluence have been estimated to be 80 percent in the first 2 miles and up to 50 percent overall in the 6 miles downstream of that confluence (U.S. Fish and Wildlife Service 1994).

The altered patterns of fluvial geomorphic processes in the upper Trinity River have resulted in a reduction in the number of alternate gravel bar sequences with a resultant change in substrate

quality and a loss of important salmonid habitats associated with the alternate bars (e.g., pools, riffles, open gravel/cobble bars, and slack-water habitats). Additionally, functional side-channel habitat has also been affected by modifications to alluvial deposits.

Changes in substrate composition occur in conjunction with upland and riverine processes. The construction and operation of the TRD have modified the sediment regime of the mainstem Trinity River, particularly the 40-mile reach below Lewiston Dam. The thermal environment of the Trinity River has also changed as a combined result of the construction and operation of the TRD and the subsequently altered geomorphic patterns of the river downstream. In comparison to pre-TRD conditions, water temperatures below Lewiston Dam today are cooler in the summer and warmer in the winter.

HABITAT RESTORATION PROJECTS

Since the early 1980s, the Trinity River Basin Fish and Wildlife Restoration Program has conducted a variety of restoration activities in the mainstem Trinity River and its tributaries. Restoration activities in the mainstem Trinity River have included coarse sediment (spawning gravel) supplementation, pool dredging to remove fine sediment and restore valuable holding habitat and construction of several channel rehabilitation projects (side channels and bank rehabilitation of point bars).

From 1990 through 1993, the Trinity River Basin Fish and Wildlife Restoration Program constructed 29 channel rehabilitation projects on the mainstem Trinity River between Lewiston Dam and the North Fork Trinity River, 20 side-channel projects, and nine bank rehabilitation projects (also known as feathered-edge projects). Monitoring of the previous channel rehabilitation projects has documented chinook salmon spawning within the constructed side-channels and along some “feathered-edge” sites (Chamberlain, pers. comm. 2004); U.S. Fish and Wildlife Service unpublished data). An evaluation of the monitoring results associated with early restoration efforts concluded that “when properly constructed, bank rehabilitation can effectively increase the amount of salmonid fry rearing habitat in the Trinity River” (U.S. Fish and Wildlife Service and Hoopa Valley Tribe 1999).

3.6.2 Environmental Consequences/Impacts and Mitigation Measures

3.6.2.1 Methodology

The analytic methods used to assess potential impacts of the Proposed Project on fisheries resources included a comprehensive literature search and focused field surveys. Evaluation of the presence of special-status fish species and sensitive habitats within the boundaries of the site was conducted by performing a database search of the California Natural Diversity Database (CNDDB), informally consulting with resource agencies (e.g., CDFG, NMFS, and USFWS), and reviewing environmental documents and technical studies prepared for projects in the vicinity. Aquatic habitat within the 40-mile reach below Lewiston Dam was identified and characterized based on the USFWS mesohabitat delineations map, reconnaissance-level site visits, consultation with local fishery biologists, and review of pertinent literature and data. These efforts were conducted to provide an overview of the quality and character of potential suitable spawning, holding, and rearing habitat present within this reach.

3.6.2.2 Significance Criteria

Significance criteria used to assess the potential impacts of the project on fisheries resources are based on the current scientific understanding of the biological requirements and ecological status of the species of interest, and the regulatory standards of county, state, and federal agencies, including the CEQA Guidelines. A significant impact on anadromous salmonids and other native fish would occur if the project would result in any of the following:

- Potential to substantially reduce the number or restrict the range of an endangered or threatened native fish species or a native fish species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- Potential for substantial reductions in the habitat of any native fish species other than those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- Potential for causing a native fish population to drop below self-sustaining levels;
- Substantial adverse effect, either directly or through habitat modifications, on any native anadromous species identified as a sensitive or special-status fish species in local or regional plans, policies, or regulations;
- Substantial interference with the movement of any native anadromous or resident fish species;
- A conflict with, or violation of, the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan relating to the protection of native anadromous species or resident fish species;
- Mortality of state or federally listed fish species, or species that are candidates for listing or proposed for listing;
- Reductions in the size of the population of a native fish species sufficient to jeopardize its long-term persistence;
- Temporary impacts to habitats such that native fish species suffer increased mortality or lowered reproductive success that jeopardizes the long-term persistence of those local populations;
- Permanent loss of designated critical habitat and/or essential habitat of a listed species or special-status native fish species; or
- Reduction in the quantity or quality of habitats in which native fish species populations occur sufficient to reduce the long-term abundance and productivity of local populations.

3.6.2.3 Impacts and Mitigation Measures

Table 9 summarizes the potential fisheries impacts that would result from the No-Project alternative and the Proposed Project.

Table 9. Summary of Potential Fishery Resource Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.6-1. Implementation of the project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-2. Implementation of the project could result in increased erosion and sedimentation that could adversely affect fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-3. Construction activities associated with the project could potentially result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-4. Construction activities associated with the project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon.		
No impact	Significant	Less than significant
Impact 3.6-5. Implementation of the project would result in the permanent and temporary loss of SRA habitat for anadromous salmonids.		
No impact	Significant	Less than significant
Impact 3.6-6. Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.		
No impact	Significant	Less than significant

Impact 3.6-1: Implementation of the project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no effects on spawning and rearing habitat other than those associated with current ongoing actions because the project would not be constructed. As described in Chapter 1, the TRRP and other entities have been implementing channel rehabilitation projects for several years. These projects continue to affect the Trinity River with regards to flows, sediments, channel morphology, and riparian vegetation. These effects would continue to influence the spawning and rearing habitat for anadromous fishes, irrespective of this alternative. Under this alternative, there would be no impact.

PROPOSED PROJECT

Overall the Proposed Project would increase the length of the river edge by splitting the river flow around an in-channel island and through a low-flow side channel. Splitting the flow in the main channel would move part of the river closer to the box culvert, thereby improving the functionality and sediment transport capability of Wheel Gulch. The project would provide an additional benefit by increasing the frequency of floodplain inundation.

Activity Area R-1 would develop channel complexity and increase bank length to provide additional rearing habitat over a wide range of flows and to create conditions more conducive for a dynamic, sinuous channel. During normal water years, the side channel would also provide an area for natural riparian vegetation recruitment. These frequently inundated and partially vegetated areas in Activity Areas R-1 and R-2 would provide cover, nutrients, and invertebrate input to system. Activity Area R-3 would create an alcove to connect to the side channel (Activity

Area R-2) and the Wheel Gulch connection (Activity Area R-4) to the Trinity River that would provide off-channel habitat for both aquatic and terrestrial species and increase bank length to provide additional rearing habitat over a wider range of flows. Activity Area R-4 would improve the flow of water and sediment through Wheel Gulch and provide off-channel habitat for a variety of plant and animal species. This activity would also create a backwater area specifically designed to provide rearing habitat for fish and amphibians.

Augmenting the main channel with the island feature would have multiple benefits including increased spawning habitat and support of pool and riffle formation. Activity Area IC-1 would develop channel complexity and increase bank length to provide additional salmonid rearing habitat over a wide range of flows and to create conditions more conducive for a dynamic sinuous channel.

Coho Salmon

Under the Proposed Project, no permanent adverse effects to coho salmon spawning habitat would occur within the rehabilitation site. Instead, the Proposed Project is expected to result in immediate as well as long-term improvements. Figure 5 illustrates the extent of the grading, excavating, and coarse sediment addition that would occur below the OHWM in riverine habitat. The long-term design objective is that implementation of the Proposed Project along with the flow management regime implemented by the TRRP would reactivate channel migration across the floodplain within the boundaries of the site. This dynamic fluvial channel would result in a net increase in point bar surface area through coarse sediment deposition, increasing spawning habitat within the boundaries of the site. The addition of coarse sediment would immediately provide suitable sized spawning gravels to coho and other salmonids.

Adverse effects on spawning habitat are expected to be limited to short-term, localized sedimentation caused by settling of silt disturbed by bank-side excavation activities; construction of the IC-1 island; and the addition of coarse sediment material, including contouring and grading in the low-flow channel. Any salmon redds on or near the in-channel work could be destroyed or disturbed by these construction activities. Silt suspended by these activities may be dispersed and re-settle on downstream suitable spawning areas near the construction area. However, all in-channel work would be conducted only during late-summer (July 15-September 15) low-flow conditions, as authorized by NMFS and CDFG, to avoid impacts to spawning anadromous salmonids.

Some temporary effects on the quality of habitat for juvenile salmonids would occur through removal of riparian vegetation that contributes to SRA habitat in the project reach. The principal effects of in-channel work on fish include displacement of rearing salmonid fishes from their habitat and increased predation risk or reduced feeding efficiency through the loss of the cover function provided by the SRA habitat (Michney and Hampton 1984; Michney and Deibel 1986). The potential direct and indirect effects to fish resulting from increased suspended sediment and turbidity levels are addressed further under Impact 3.6-2.

The adverse impacts on habitat are expected to be offset in the long-term by benefits associated with implementing the Proposed Project. These benefits would accrue from: 1) the constructed inundation surfaces, 2) overall reconnection of these inundated surfaces to the river at low flows, 3) increased bed mobility and potential channel migration through the alluvial surfaces, and 4) revegetation of these surfaces with native plant species that would contribute shade and large

wood to the river channel. Improved connectivity, particularly during high flows is expected to increase areas of slow, shallow-water habitat preferred by salmonid fry. The process of channel migration may also create new point bars, further increasing the availability of this preferred habitat. The constructed main channel branch, potential channel migration process, and engineered side channel and alcove habitats would collectively increase the relative abundance of rearing habitat, compared to the existing condition. As shown in Figure 5, approximately 1.23 acres of low slope (glide) habitat would be impacted by in-channel and riverine work (i.e., main channel split flow and gravel augmentation [IC-1 island]).

Ultimately, the collective changes in channel morphology as a result of the Proposed Project would improve rearing habitat diversity and abundance, for all anadromous salmonids. LWD would be strategically placed in restored side-channels and floodplain areas. The addition of LWD would provide complex physical habitat for juvenile and adult fish in the Trinity River. Large wood hydraulic and habitat structures would create spawning and rearing habitat, increase nutrient and organic matter retention (which increases food production in the system), and provide refuge from predators and cover during high winter flows (Bustard and Narver 1975; Lestelle 1978; Lestelle and Cederholm 1982; Hicks et al. 1991; Cederholm et al. 1997).

Chinook Salmon

Potential impacts and benefits to chinook would be generally similar to those previously described for coho salmon. Spring- and fall-run salmon potentially spawn and rear within or in the vicinity of the site. Juvenile spring-run chinook salmon would be expected to rear year-round within the site and may be displaced by in-river work activities. Additionally, prior to spawning adult spring-run chinook salmon may utilize holding habitat offered by run, glide, and pool areas within the site. No permanent adverse impacts to spring-run chinook salmon holding habitat would occur. The Proposed Project does not include activities that would directly fill, modify, or otherwise affect the quality or quantity of spring-run holding habitat. Temporary effects on spring-run chinook holding habitat associated with construction of the Proposed Project would be limited to short-term, localized increases in transient turbidity caused by bank-side excavation activities; main channel split flow construction (Activity Area R-1); island construction; and contouring and grading in the low flow channel. The potential effects of increased suspended sediment and turbidity to holding adult spring-run chinook salmon are addressed under Impact 3.6-2.

Steelhead

Potential impacts and benefits to steelhead resulting from implementation of the Proposed Project would be generally similar to those previously described for coho and chinook salmon. Summer, fall, and winter runs of steelhead may migrate and stage within or near the site and may spawn (as adults) and rear (as juveniles).

Pacific Lamprey

Potential impacts and benefits to Pacific lamprey resulting from implementation of the Proposed Project would be similar to those previously described for coho salmon and other anadromous salmonids. The removal of riparian vegetation that contributes to SRA habitat within the site boundaries could have a temporary impact on adult Pacific lamprey by reducing holding and hiding habitat, which is particularly important for upstream migrant adults. However, the implementation of the Riparian Revegetation and Monitoring Plan, described in Appendix A, would alleviate this impact over the longer term.

Although the impacts to coho salmon and other anadromous fish under the Proposed Project would be temporary and localized, they would be significant.

MITIGATION MEASURES

Implementation of the project could result in effects on potential spawning and rearing habitat for anadromous fishes, including the federally and state-listed coho salmon. Therefore, mitigation measures 4.6-1a and 4.6-1b described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-2: Implementation of the project could result in increased erosion and sedimentation levels that could adversely affect fishes, including the federally and state-listed coho salmon.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no increase in erosion or sedimentation levels that could adversely affect fish species because the project would not be constructed. Similar to previous discussions, this alternative acknowledges that a number of restoration activities that are intended to restore the fishery resources and functional values offered by the mainstem Trinity River have been implemented or are ongoing. While some of these activities may result in changes to erosional processes and sedimentation levels, these changes are taken into account in the evaluation of this alternative. The No-Project alternative would not result in an impact with respect to this issue.

PROPOSED PROJECT Coho Salmon

Activities related to implementation of the Proposed Project would result in the localized loss of vegetation and general disturbance to the bed and banks of the Trinity River. Removal of vegetation and soil could accelerate erosion processes within the boundaries of the rehabilitation site and increase the potential for sediment delivery to the Trinity River. The turbidity of a water body is related to the concentration of suspended solids. Suspended solids and turbidity generally do not acutely affect aquatic organisms unless they reach extremely high levels (i.e., levels of suspended solids reaching 25 mg/L). At these high levels, suspended solids can adversely affect the physiology and behavior of aquatic organisms and may suppress photosynthetic activity at the base of food webs, affecting aquatic organisms either directly or indirectly (Alabaster and Lloyd 1980).

In-channel and riverine activities would disturb the alluvial materials that constitute the bed and banks of the Trinity River. Exposed soils on the upland and staging areas are susceptible to mobilization from rainfall during early season runoff events. In-river excavation is planned as part of the Proposed Project; therefore, it is expected that excavation and operation of heavy equipment would resuspend silt and sand, and result in localized and temporary increases of suspended sediment and turbidity.

Approximately 1.23 acres of low slope (glide) habitat would be affected during the various in-channel activities. Operation of heavy equipment in the active channel during these activities would likely resuspend streambed sediments. Any juvenile coho salmon rearing in the area during in-channel construction may be temporarily displaced or their social behavior may be temporarily disrupted by turbidity created during this activity.

Erosion and deposition of fine sediments associated with implementation of the Proposed Project are expected to be localized and temporary. Some fine-textured materials may settle near or on spawning habitats located downstream of riverine rehabilitation areas, but these materials are not expected to impair redd excavation or spawning. Excavation, grading, and coarse sediment addition within the channel would occur only during low-flow conditions between July 15 and September 15, minimizing the potential for adverse effects on all life stages of coho salmon. Any juvenile coho salmon rearing in the area during this timeframe could be temporarily displaced or their social behavior could be temporarily disrupted by an increase in turbidity. Behavioral disruption, even temporarily, could result in some increased vulnerability to competitive interactions or predation for juvenile coho salmon (Berg and Northcote 1985). These temporary impacts were anticipated and addressed in the 2000 Biological Opinion and associated incidental take statement for the ROD and amended Biological Opinion for in-river work.

Chinook Salmon

Potential impacts to chinook salmon populations in the Trinity River resulting from implementation of the Proposed Project would be generally similar to those described for coho salmon. Consequently, re-suspension of fine-textured sediment, potential erosion and sediment runoff, and elevated turbidity for short distances downstream could occur during the migration, spawning, and rearing seasons. Spring- and fall-run chinook salmon are known to spawn in suitable habitats within and adjacent to the site. Construction activities are proposed during the spawning period, and in-river construction may temporarily displace holding adult salmonids. Some fine-textured materials may settle near or on known spawning habitats located downstream of riverine rehabilitation areas, but these materials are not expected to impair redd excavation or spawning. Juvenile spring-run chinook salmon are expected to rear throughout the year within or adjacent to the site boundaries, and transient increases in turbidity and re-suspension of sediments would be likely to have similar effects on juvenile chinook salmon as on coho salmon. Adult spring-run chinook salmon using holding habitat during the summer months may be displaced to other holding habitats either upstream or downstream by transient turbidity and sediment plumes created by construction activity.

Steelhead

Potential impacts to steelhead populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho and chinook salmon. Summer and winter runs of Klamath Mountain Province ESU steelhead are known to migrate, stage (as adults), and rear (as juveniles) in the Trinity River throughout the proposed construction season. Both runs generally spawn during the winter.

Pacific Lamprey

Potential impacts to Pacific lamprey populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho salmon and other anadromous salmonids. Adult Pacific lampreys migrate upstream from spring through early summer and again in the fall to spawn. Larval lampreys inhabit the river year-round. Siltation of nests that may be built in suitable habitats (i.e., low-slope riffles) could occur. Filter feeding by larval lampreys could be disrupted by an increase in suspended sediments caused by construction-related erosion, although this impact would be very localized and temporary.

While the Proposed Project would increase aquatic habitat within the boundaries of the site, the proposed construction activities would result in an increase in erosion and sedimentation in the short-term. While the long-term impact would be beneficial, the short-term impacts on fishes within the Trinity River would be significant.

MITIGATION MEASURES

Implementation of the project could result in increased erosion and sedimentation levels that could adversely affect fishes, including the federally and state-listed coho salmon. Therefore, mitigation measures 4.6-2a, 4.6-2b, 4.6-2c, 4.6-2d, and 4.6-2e described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-3: Construction activities associated with the project could result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no risk of accidental spills of hazardous material because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Coho Salmon, Chinook Salmon, Steelhead, and Pacific Lamprey

Construction activities typically include the refueling of construction equipment on location. The Proposed Project also includes activities that would place mechanized equipment (e.g., trucks, excavators) within the active channel for short periods. As a result, minor fuel and oil spills could occur and there would be a risk of larger releases. Without rapid containment and clean up, these materials could be toxic, depending on the location of the spill in proximity to surface water features, including the Trinity River. Oils, fuels, and other contaminants could have deleterious effects on all life stages of salmonids and other anadromous fish within close proximity to construction activities. Although short-term, these impacts are considered significant.

MITIGATION MEASURES

Construction activities associated with the project could result in the accidental spill of hazardous materials that could adversely affect fishes, including the federally and state-listed coho salmon. Therefore, mitigation measure 4.6-3a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant. Section 3.5, Water Quality, and Section 3.13, Hazards and Hazardous Materials, provide additional details on mitigation measures developed for water quality standards, hazards, and hazardous materials.

Impact 3.6-4: Construction activities associated with the project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon.

NO-PROJECT ALTERNATIVE

Under the No-Project Alternative, construction-related mortality to rearing salmonids would not occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT
Coho Salmon

Coho salmon are known to occur throughout the Trinity River. Suitable coho salmon rearing habitat exists within the boundaries of the rehabilitation site, and juvenile coho salmon may rear within these boundaries year-round. Adult coho migrate through the site and use suitable spawning habitat throughout the 40-mile reach of the Trinity River below Lewiston Dam. Direct injury to, or mortality of, coho salmon could occur during in-river construction activities. These activities would be conducted only during late-summer low-flow conditions (e.g., July 15 – September 15), thus, minimizing the potential for direct mortality to rearing coho, because this period corresponds to a time of the year when the fewest number of juvenile coho salmon are known to occur in the project reach.

NMFS expects that all displaced juvenile fish, including coho salmon, would find suitable habitat within river reaches upstream or downstream of the project, because juvenile rearing habitat within the mainstem Trinity River is likely under-saturated during summer and fall months (National Marine Fisheries Service 2006). The construction period identified above would completely avoid the spawning period for coho salmon; therefore, direct impacts to adult coho salmon or their eggs/alevins (yolk-sac fry) would not occur.

A small, temporary, but uncertain level of stranding of coho salmon fry could occur on the newly constructed inundation surfaces and side channels during rapidly receding flood-flow periods in the winter and early spring when fry are emerging. Additionally, construction of side channel features could result in stranding conditions as flows recede, particularly if the downstream end fills with fine sediments, potentially stranding coho salmon fry. Although stranding of fry under such receding flood conditions occurs on naturally shallow floodplains and in flood bypasses (Sommer 2001), the constructed features could increase this process to varying degrees. All of the designs for constructed inundation surfaces incorporate a downstream slope equal to that of the river channel and would drain in a downstream direction that would be guided toward the river channel by earthwork contours to minimize the potential for stranding. As fluvial channel migration occurs through these surfaces, the potential for fry stranding is expected to equilibrate to that of a natural stranding risk. While the activities included in the Proposed Project are intended to benefit coho salmon, the short-term construction impacts would be significant.

Chinook Salmon

Potential impacts to chinook salmon populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those described for coho salmon. Physical construction within and directly adjacent to the river channel could disturb holding spring-run chinook salmon. The principal effect to spring-run chinook is that they would be forced to relocate. The Proposed Project would not impair migration, and spring-run chinook salmon would be able to locate and use suitable holding habitat outside of the disturbed areas. Water temperatures are the coolest in the reach of the Trinity River that encompasses the Phase 1 and Phase 2 sites, and physiological effects, or ultimately death, are not expected as temperatures in this reach of the Trinity River (13-15 °C) are below the threshold observed where spring run can accumulate stresses. Based on the proximity of the site boundaries to holding habitat observed in 2003/2004, and ongoing studies on temperature tolerance, temperatures in this section of the Trinity River are sufficiently cool that spring-run chinook salmon are able to deal with stressors (e.g., relocation) without adverse effect (North State Resources 2005).

Steelhead and Pacific Lamprey

Potential impacts to steelhead populations in the Trinity River resulting from implementation of the Proposed Project would be similar to those previously described for coho and other anadromous salmonids. While the activities included in the Proposed Project are intended to benefit salmonids and other aquatic organisms, the short-term construction impacts would be significant.

MITIGATION MEASURES

Construction activities associated with the project could result in the mortality of rearing fishes, including the federally and state-listed coho salmon. Therefore, mitigation measures 4.6-4a, 4.6-4b, 4.6-4d, and 4.6-4f described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-5: Implementation of the project would result in the permanent and temporary loss of SRA for anadromous salmonids.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, loss of SRA habitat would not occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

As described in the Trinity River Master EIR Section 4.6, Fishery Resources, the term *riparian habitat* encompasses the range of riparian vegetation conditions along the river corridor including rehabilitation sites. It does not have a specific legal description or definition. For the purposes of this document, the term riparian habitat encompasses the range of riparian vegetation conditions within the boundaries of the site and is synonymous with SRA habitat.

Coho Salmon, Chinook Salmon, Steelhead, and Lamprey

Removal of montane riparian wetland vegetation along the banks of the Trinity River could adversely affect the quality of SRA habitats used by rearing salmonids. Riparian vegetation is important to the maintenance of healthy fish habitat. Riparian areas provide shade and temperature benefits, sediment, nutrient and chemical regulation, stream bank stability, and inputs of LWD and organic matter to the channel. Riparian vegetation that is adjacent to the river, a component of SRA habitat, is an element of designated critical habitat for coho salmon and a component of EFH for chinook and coho salmon. However, complexity in the riparian environment is also an important component of fish habitat; such complexity would be increased over the long-term under the Proposed Project.

Removal of the riparian berm and re-activation of adjacent floodplains within riverine activity areas would allow for natural revegetation of most of the riparian habitat that would be lost as a result of berm removal and floodplain contouring. Under the Proposed Project, large seed trees (willow and cottonwood) and large nesting trees would be left intact. Additionally, riparian habitat removed under the Proposed Project would be replaced during the revegetation efforts consistent with the requirements of the Riparian Revegetation and Monitoring Plan. While no permanent net loss of SRA features would necessarily occur, the short-term impact of removing 3.6 acres of riparian vegetation (see Figure 6) is considered a significant impact.

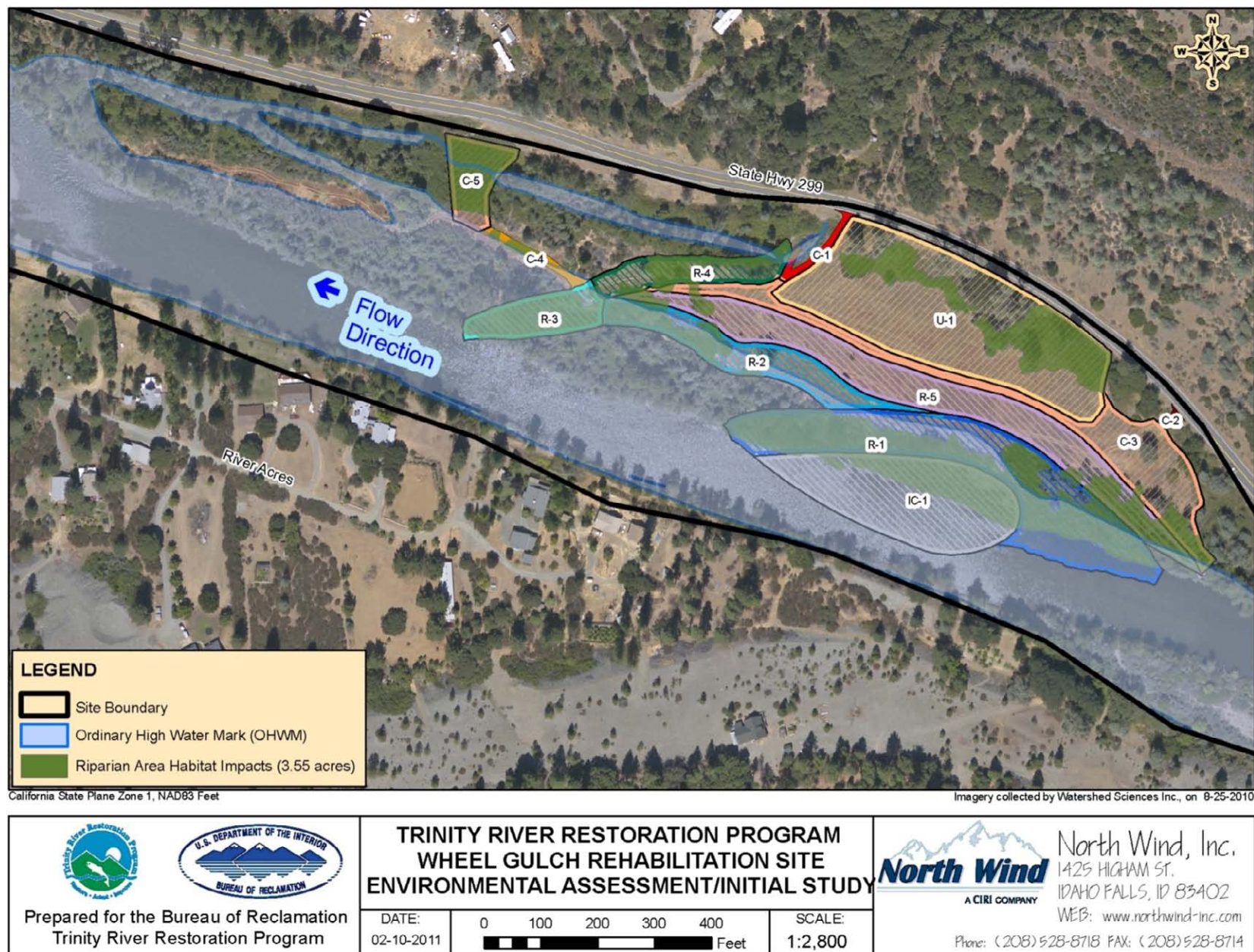


Figure 6. Impacts of Proposed Project on Riparian Area Habitat.

MITIGATION MEASURES

Implementation of the project would result in the permanent and temporary loss of SRA for anadromous salmonids. Therefore, mitigation measures 4.6-5a, 4.6-5b, and 4.6-5c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.6-6: Implementation of the project would result in fish passage being temporarily impaired during the in-stream construction phase.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, temporary impairment of fish passage would not occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Coho Salmon, Chinook Salmon, Steelhead, and Pacific Lamprey

Construction activities associated with the Proposed Project would not require temporary placement of low-flow channel crossings to move heavy equipment across the low-flow channels because there are no activity areas on the opposite bank of the Trinity River. Therefore, the impact would be less than significant.

3.7 Vegetation, Wildlife, and Wetlands

This section describes the vegetation, wildlife, and wetlands that are known to occur at the Wheel Gulch rehabilitation site and evaluates the impacts of the Proposed Project on these resources. The discussion of biological resources is based on a focused literature review, informal consultation with resource agencies, and observations made during field visits. Additional information about these resources is contained in Section 4.7 of the Trinity River Master EIR.

3.7.1 Affected Environment/Environmental Setting

3.7.1.1 Plant Communities

Although a variety of plant communities are present, the study area is dominated by the following five habitats: montane riparian, annual grassland, foothill pine, barren, and riverine. These habitats are described below.

MONTANE RIPARIAN

Montane riparian habitat occurs along the riparian berm adjacent to the OHWM of the Trinity River and along a drainage that runs along much of the base of the SR-299 road embankment. This habitat type comprises approximately 50 percent of the non-riverine habitat types in the study area. Dominant tree species include white alder (*Alnus rhombifolia*), Fremont's cottonwood (*Populus fremontii* ssp. *fremontii*), Oregon ash (*Fraxinus latifolia*), black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), red willow (*Salix laevigata*), and shining willow (*Salix lucida*). Understory trees and shrubs include narrow-leaved willow (*Salix exigua*), arroyo willow (*Salix lasiolepis*), California wild grape (*Vitis californica*), Himalayan blackberry (*Rubus discolor*), California blackberry (*Rubus ursinus*), and virgin's bower (*Clematis ligusticifolia*).

RIVERINE

Riverine habitat is the second most abundant habitat along the Wheel Gulch rehabilitation site and is characterized as the active Trinity River channel within the OHWM as defined by a Hydrologic

Engineering Center River Analysis System (HEC-RAS) model developed for Reclamation. Riverine habitat is dominated by run and riffle areas, with boulder, cobble, gravel, and sand substrates. Vegetation within the active river channel is sparse with occasional clumps of torrent sedge (*Carex nudata*). Montane riparian habitat occurs adjacent to riverine habitat throughout most of the site.

ANNUAL GRASSLAND

Annual grassland occurs mostly on the floodplain and channel that run down the middle of the rehabilitation site on the north side of the river. This plant community is dominated by non-native grasses and forbs, including soft brome (*Bromus hordeaceus*), ripgut brome (*Bromus diandrus*), cheatgrass (*Bromus tectorum*), rattail fescue (*Vulpia myuros*), Indian clover (*Trifolium albopurpureum*), yellow starthistle (*Centaurea solstitialis*), black mustard (*Brassica nigra*), and Dalmatian toadflax (*Linaria genistifolia*).

BARREN

Barren habitat occurs primarily on the alluvial point bar on the south side of the river at the downstream end of the study area. Vegetation is very sparse consisting of opportunistic annual grasses and forbs, scattered willow seedlings, and isolated clumps of willow resprouts.

FOOTHILL PINE

Foothill pine habitat occurs mostly on the north side of the study area on the steep hillside and bedrock at the downstream end, and in small patches adjacent to and south of SR-299. The dominant overstory species present is gray pine (*Pinus sabiniana*), although its occurrence is sparse. Understory vegetation includes greenleaf manzanita (*Arctostaphylos manzanita*), whiteleaf manzanita (*Arctostaphylos viscida*), buck brush (*Ceanothus cuneatus*), mountain mahogany (*Cercocarpus betuloides*), deerbrush (*Ceanothus integerrimus*), and poison-oak (*Toxicodendron diversilobum*). The underlying herbaceous layer includes slender oats (*Avena barbata*), smooth cat's ear (*Hypochaeris glabra*), and false hedge-parsley (*Torilis arvensis*).

In addition to these five habitats, six other less prevalent habitat types also occur within the rehabilitation site. The identification and delineation of these habitat types are based on the draft *Trinity River Riparian Vegetation Map 2008 Update* (Trinity River Restoration Program 2009). The eleven plant communities known to occur at the site are listed in Table 10 and shown on Figure 7. These plant communities are discussed in more detail in the Trinity River Master EIR (Section 4.7).

Table 10. Plant Community Types Within the Wheel Gulch Rehabilitation Site Boundary.	
PLANT COMMUNITY TYPES	ACRES
Montane riparian	13.94
Riverine	9.10
Annual grassland	6.13
Barren	2.40
Foothill pine	2.34
Urban	2.07
Mixed chaparral	0.29
Montane-hardwood conifer	0.10
Klamath mixed conifer	0.06
Valley foothill riparian	0.04
Ponderosa pine	0.01

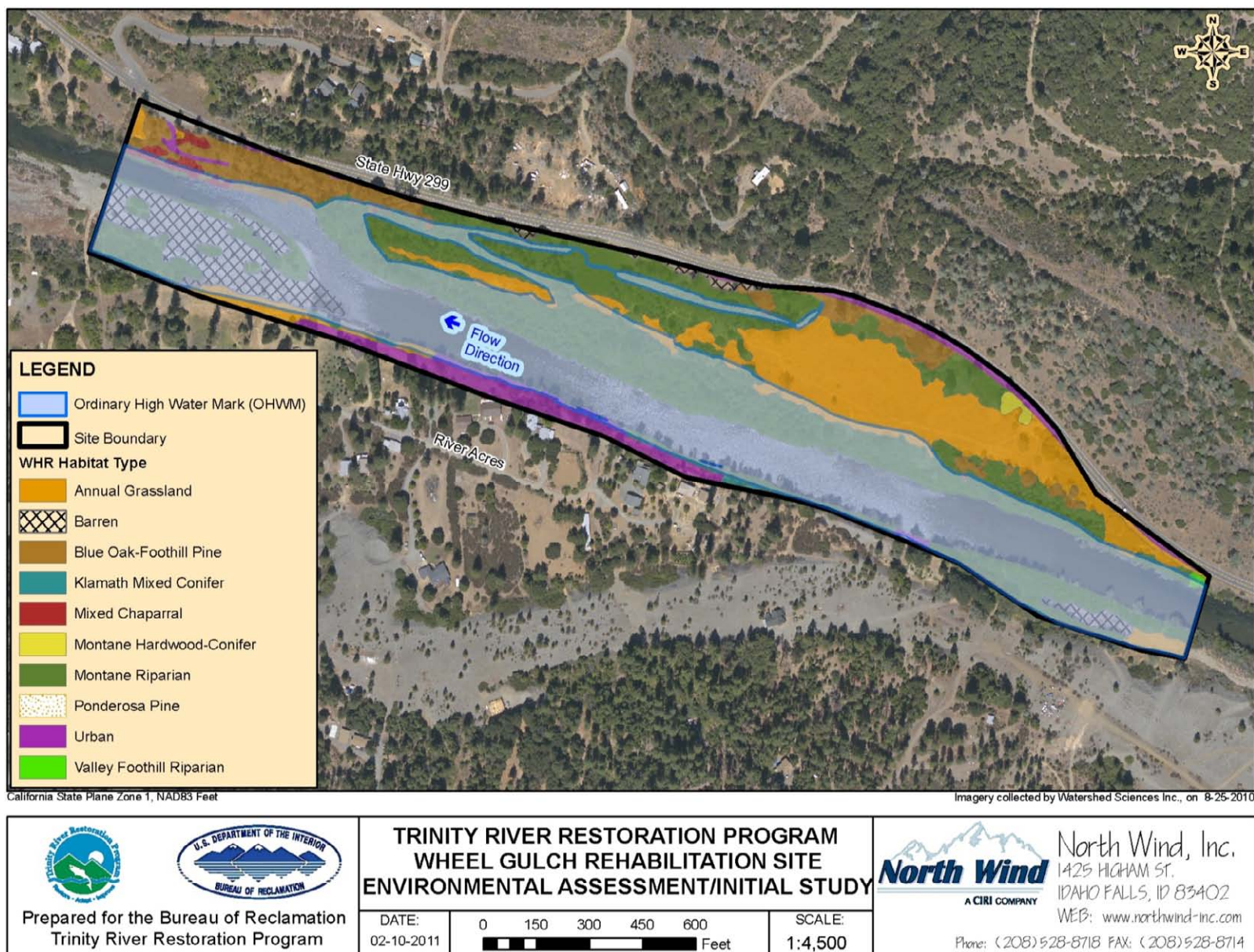


Figure 7. Plant Community Habitats in the Wheel Gulch Rehabilitation Site.
(Habitat classification follows the California Wildlife Habitat Relationships (WHR) model).

3.7.1.2 Wildlife Resources

The wildlife species typically associated with the primary plant communities present in the project area (Table 10) are summarized in the Trinity River Master EIR (Section 4.7). Special-status species potentially occurring within, or in close proximity to, the rehabilitation site are also discussed in the Trinity River Master EIR (Section 4.7 and Table 4.7-1). The Trinity River corridor provides habitat and travel corridors for such species as Pacific fisher, American marten, black-tailed deer, river otter, beaver, common merganser (*Mergus merganser*), green heron (*Butorides virescens*), black-crowned night heron (*Nycticorax nycticorax*), wood duck (*Aix sponsa*), belted kingfisher, cliff swallow (*Hirundo pyrrhonota*), bank swallow, and raccoon. The riparian vegetation along the Trinity River, in association with adjacent and/or nearby mixed-conifer and montane hardwood-conifer habitat, provides connected habitat within an area that has been fragmented by rural residential development and road building. Black-tailed deer inhabit shrublands, forests, and oak woodlands and use riparian vegetation for cover.

3.7.1.3 Non-Native and Invasive Plant Species

Non-native and invasive species are present at the Wheel Gulch rehabilitation site. The approximate location and extent of high priority invasive plants were noted during vegetation surveys conducted for the site. The high priority noxious weeds that were most prevalent at the site include Himalayan blackberry, yellow starthistle, and Dalmatian toadflax. Himalayan blackberry was dominant in the understory of the montane riparian habitat type. Yellow starthistle and Dalmatian toadflax dominated much of the annual grassland habitat type. Other high priority noxious weeds detected during the 2009 survey included cheatgrass which was widespread within the annual grassland habitat type, Klamathweed (*Hypericum perforatum*) scattered in the montane riparian and annual grassland habitat types, and several mature tree of heaven (*Ailanthus altissima*) on the SR-299 embankment adjacent to an old vehicle access approximately 0.15 mile from the eastern end of the rehabilitation site. Additional information regarding invasive species is presented in the Trinity River Master EIR (Section 4.7).

3.7.1.4 Jurisdictional Waters (Including Wetlands)

Eight jurisdictional water types, including wetlands and other waters, occur at rehabilitation sites along the Trinity River. Wetland types include riparian wetland, seasonal wet meadow, fresh emergent wetlands, and seasonal wetland. Other waters include riverine, intermittent stream, vegetated ditch, and non-vegetated ditch. These jurisdictional waters types are discussed in detail in the Trinity River Master EIR (Section 4.7). Within the Wheel Gulch site boundary a total of 21.74 acres of jurisdictional waters were verified by the Army Corps of Engineers on a site visit in July 2009. This total included 12.93 acres of other waters (e.g., intermittent streams, ponds, and riverine habitat) and 8.81 acres of riparian wetland (both above and below the OHWM). As shown on Figure 8, there are 1.65 acres of riverine waters and 1.71 acres of riparian wetlands that potentially would be impacted in the Wheel Gulch rehabilitation site. Each of these is briefly described below.

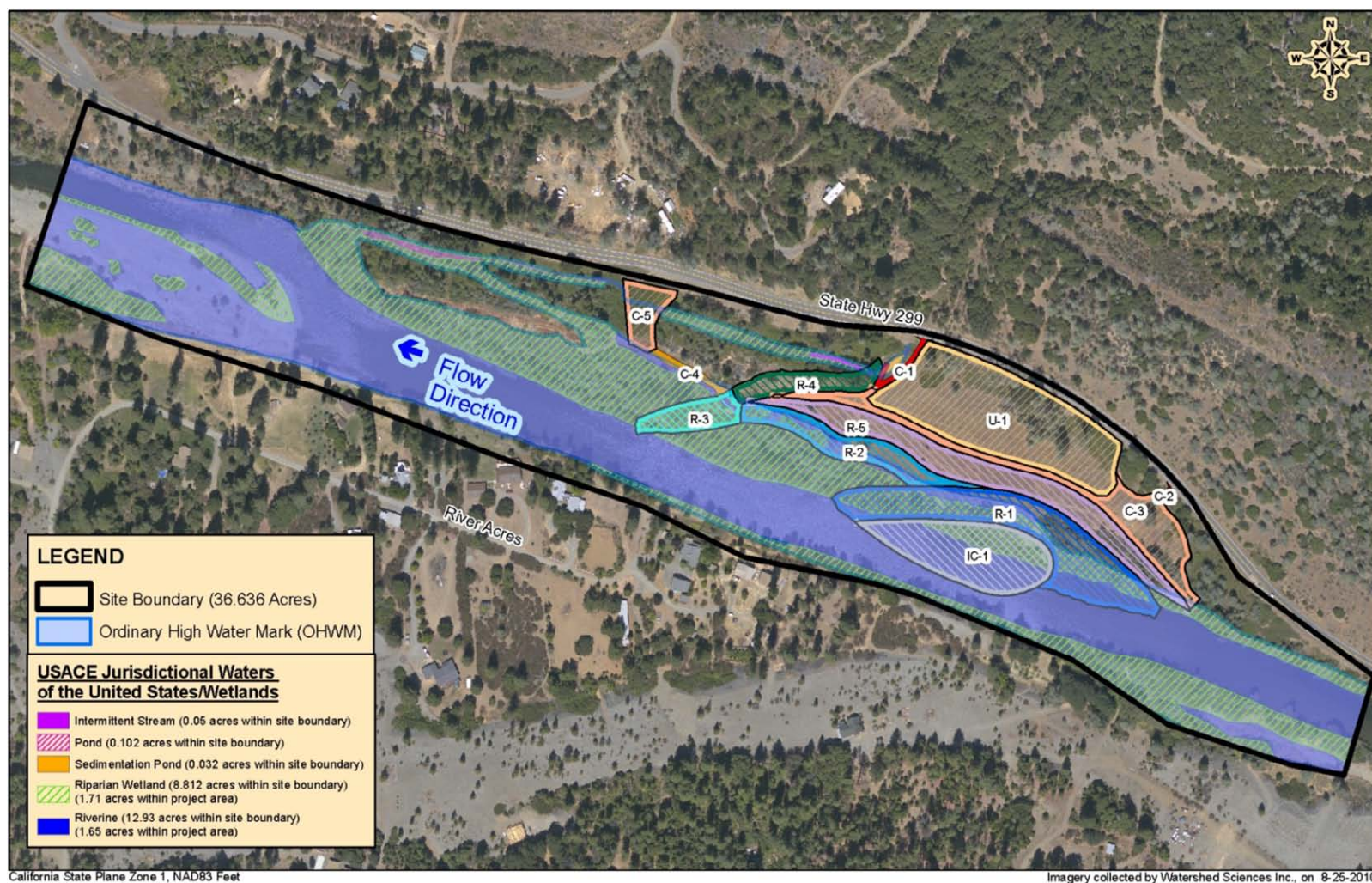


Figure 8. Boundaries of Waters of the United States, Including Wetlands, and Potential Project Impacts, in the Wheel Gulch Rehabilitation Site.

RIPARIAN WETLANDS

Riparian wetlands are often associated with the Trinity River corridor. These wetlands are characterized by a complex of open to dense emergent herbaceous and woody riparian growth. These sites include positive field indicators of wetland hydrology and hydric soils. Herbaceous plant species that almost always occur (> 99 percent probability) are designated as obligates (OBL) and herbaceous plant species that usually occur (> 67 percent probability) are designated as facultative wetland species (FACW). These plant species typically include torrent sedge (FACW+), tall flatsedge (*Cyperus eragrostis* – FACW), least spikerush (*Eleocharis acicularis* – OBL), smooth scouring rush (*Equisetum laevigatum* – FACW), and reed canary grass (*Phalaris arundinacea* – OBL).

RIVERINE (PERENNIAL STREAM)

The Trinity River is the primary factor influencing wetland features associated with the site. Riverine habitat, identified as the river itself, exhibits a distinct bed and bank feature (i.e., scouring), as well as continuous inundation, watermarks, drift lines, and sediment deposits.

3.7.1.5 Other Biological Resources

Migratory birds and raptors (birds of prey) may nest within, or in close proximity to, the rehabilitation site. Migratory birds and their nests are protected under the federal Migratory Bird Treaty Act (MBTA; 50 CFR 10 and 21). Most of the birds found in the project area are protected under the MBTA. Raptors are also protected under the California Fish and Game Code. The communities in the project area provide suitable breeding and foraging habitat for several raptors, such as the red-tailed hawk and great horned owl (*Bubo virginianus*). Riparian habitat, which is considered a sensitive natural community by the CDFG, is present in the project area along the Trinity River. Critical Winter Range is also present in areas along the Trinity River.

3.7.2 Environmental Consequences/Impacts and Mitigation Measures

3.7.2.1 Methodology

Methods used to assess potential impacts of the Proposed Project on vegetation and wildlife resources included a review of pertinent literature and data and field surveys. Evaluation of the presence of special-status species and sensitive habitats within the boundaries of the site was conducted by performing a database search of the CNDDDB and informally consulting with resource agencies (e.g., CDFG, NMFS, and USFWS) regarding biological resource issues associated with the implementation of rehabilitation projects along the Trinity River. These efforts provided an overview of the quality and character of potential habitat present within this reach.

3.7.2.2 Significance Criteria

Significance criteria used to analyze the potential impacts of the project on vegetation, wildlife, and wetland resources include factual and scientific information and the regulatory standards of county, state, and federal agencies, including the CEQA guidelines. These criteria have been developed to establish thresholds to determine the significance of impacts pursuant to CEQA (Section 15064.7) and should not be confused with a “take” or adverse effect under the ESA.

Impacts on vegetation would be significant if implementation of the project would result in any of the following:

- Potential to substantially reduce the number or restrict the range of an endangered or threatened plant species or a plant species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- Potential for substantial reductions in the habitat of any native plant species including those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- Potential for causing a native plant population to drop below self-sustaining levels;
- Potential to eliminate a native plant community;
- Substantial adverse effect, either directly or through habitat modifications, on any plant identified as a sensitive or special-status species in local or regional plans, policies, or regulations;
- Substantial adverse effect on the quantity or quality of riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- A conflict with any local policies or ordinances regarding protection or control of vegetation resources;
- A conflict with, or violation of, the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of plant resources; or
- An increased potential for spread of non-native and invasive plant species.

Impacts on wildlife would be significant if implementation of the project would result in any of the following:

- Mortality of state or federally listed wildlife species, or species that are candidates for listing or proposed for listing;
- Potential for reductions in the number, or restrictions of the range, of an endangered or threatened wildlife species or a wildlife species that is a candidate for state listing or proposed for federal listing as endangered or threatened;
- Potential for substantial reductions in the habitat of any wildlife species, including those that are listed as endangered or threatened or are candidates or proposed for endangered or threatened status;
- Potential for causing a wildlife population to drop below self-sustaining levels;
- Substantially block or disrupt major terrestrial wildlife migration, or travel corridors;
- Substantial adverse effect, either directly or through habitat modifications, on any wildlife species identified as a sensitive or special-status species in local or regional plans, policies, or regulations;
- Substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations;
- A conflict with any state or local policies or ordinances protecting wildlife resources; or
- A conflict with, or violation of, the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wildlife species.

Impacts on wetlands would be significant if they would result in any of the following:

- Substantial adverse effect on any riparian habitat;
- Substantial adverse effect on federally protected wetlands as defined by section 404 of the CWA through direct removal, filling, hydrological interruption, or other means;
- A conflict with any state or local policies or ordinances protecting wetland and/or riparian resources; or
- A conflict with, or violation of, the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, state, or federal habitat conservation plan relating to the protection of wetland resources.

3.7.2.3 Impacts and Mitigation Measures

Table 11 summarizes the potential vegetation, wildlife, and wetlands impacts that would result from the No-Project alternative and the Proposed Project alternative.

Table 11. Summary of Potential Vegetation, Wildlife, and Wetland Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.7-1. Construction activities associated with the project could result in the loss of jurisdictional waters including wetlands.		
No impact	Significant	Less than significant
Impact 3.7-2. Implementation of the project would result in the loss of upland plant communities.		
No impact	Less than significant	Not applicable ¹
Impact 3.7-3. Construction of the project could result in the loss of individuals of a special-status plant species.		
No impact	Less than significant	Less than significant
Impact 3.7-4. Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.		
No impact	Significant	Less than significant
Impact 3.7-5. Construction activities associated with the project could result in impacts to foothill yellow-legged frog.		
No impact	Significant	Less than significant
Impact 3.7-6. Construction activities associated with the project could result in impacts to western pond turtle.		
No impact	Significant	Less than significant
Impact 3.7-7. Construction activities associated with the project could result in impacts to nesting Vaux's swift, California yellow warbler, and yellow-breasted chat.		
No impact	Significant	Less than significant
Impact 3.7-8. Construction activities associated with the project could result in impacts to nesting bald eagle and northern goshawk.		
No impact	Significant	Less than significant
Impact 3.7-9. Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat.		
No impact	Significant	Less than significant
Impact 3.7-10. Construction activities associated with the project could result in the temporary loss of non-breeding habitat for several special-status birds.		
No impact	Less than significant	Not applicable ¹
Impact 3.7-11. Construction activities associated with the project could result in impacts to BLM and USFS sensitive species.		
No impact	Less than significant	Not applicable ¹

Table 11. Summary of Potential Vegetation, Wildlife, and Wetland Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.7-12. Construction activities associated with the project could restrict terrestrial wildlife movement through the project area.		
No impact	Less than significant	Not applicable ¹
Impact 3.7-13. Implementation of the project could result in the spread of non-native and invasive plant species.		
No impact	Significant	Less than significant

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.7-1: Construction activities associated with the project could result in the loss of jurisdictional waters including wetlands.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no loss of jurisdictional wetlands would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Floodplain values and functions would be enhanced by the Proposed Project in conjunction with ROD flows released by the TRD. Consequently, substantial non-riparian areas beyond those identified in pre-project plant community delineations are expected to convert to riparian habitats (in some cases, jurisdictional wetlands), both seasonal and perennial, within a 3-5 year post-project window. The TRRP would take advantage of opportunities during or after project construction to enhance wetland functions within the project boundaries or to create conditions required for functional jurisdictional wetlands (i.e., hydrology, vegetation, and hydric soils) to persist over time. For example, excavation of areas upslope (above the OHWM) to a depth coincident with medium- or low-flow (2,000–450 cfs) conditions may provide opportunities to establish the hydrologic conditions necessary for establishing functional jurisdictional wetlands.

Construction activities associated with the Proposed Project would result in temporary impacts to jurisdictional waters, including wetland features at the rehabilitation site. These impacts would be considered significant. Figure 8 shows the acres of jurisdictional waters that would be affected by the Proposed Project. Construction of the Proposed Project would result in a direct temporary impact to 3.36 acres of jurisdictional waters (1.71 acres of riparian wetland and 1.65 riverine acres). This impact would be significant.

MITIGATION MEASURES

Construction activities associated with the project could result in the loss of jurisdictional waters including wetlands. Therefore, mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-2: Implementation of the project would result in the loss of upland plant communities.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related impacts to upland plant communities would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

The Proposed Project would result in the temporary disturbance of upland plant communities. While the project activities would modify the contour and slope of upland areas, these areas would be subject to natural recruitment of native plants, supplemented by planting programs consistent with the TRRP vegetation management objectives including minimizing invasive species impacts and the enhancement of wildlife habitat. Over time, these upland areas would be revegetated to the degree that site conditions allow. A combination of replanting and natural revegetation would occur to ensure that upland habitat values on the Trinity River meet wildlife needs. The need for revegetation would be determined via monitoring, coordination with local resource agencies, and adaptively managing to meet changing needs and desired future conditions. Temporary access routes and staging areas would be restored to their original condition upon completion of work. Additionally, any affected upland areas would be seeded with native plant species.

Impact 3.7-3: Construction of the project could result in the loss of individuals of a special-status plant species.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related impacts to a special-status plant species would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

No federal or state listed plant species are known to occur within the boundaries of the site. Therefore, there this impact would be less than significant.

Impact 3.7-4: Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related impacts to the little willow flycatcher would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Suitable montane riparian habitat for the little willow flycatcher may be present at the Proposed rehabilitation site, and the species has previously been detected in the region (Wilson 1995; Miller, Ralph, and Herrera 2003; Herrera 2006). Consequently, little willow flycatchers may nest at the proposed rehabilitation site. Project activities (e.g., grading, vegetation removal) in montane riparian habitat may result in a temporary reduction of foraging habitat for this species. However, implementation of mitigation measures 4.6-1a, 4.6-1b, and 4.6-1c would ensure that there is no net loss of riparian habitat and a long-term increase in riparian habitat diversity. Due to the temporary nature of the impacts and the regional abundance of similar habitats, the project is not expected to have a significant impact on habitat for the little willow flycatcher. However, the removal of riparian vegetation and the noise associated with construction activities could disturb individuals nesting on or adjacent to the site. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting little willow flycatchers or any activities resulting in nest abandonment would be considered a significant impact.

MITIGATION MEASURES

Construction activities associated with the project could result in impacts to the state-listed little willow flycatcher. Therefore, mitigation measures 4.7-4a, 4.7-4b, and 4.7-4c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-5: Construction activities associated with the project could result in impacts to the foothill yellow-legged frog.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related impacts to the foothill yellow-legged frog would occur. Therefore, there would be no impact.

PROPOSED PROJECT

The foothill yellow-legged frog is known to occur in the Trinity River from the Lewiston Dam to the North Fork Trinity River (California Department of Fish and Game 2003). Thus, construction activities associated with the Proposed Project may affect foothill yellow-legged frogs directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic, disturbance of boulders or cobbles that support egg masses, and the loss of riparian vegetation cover. The species may also be indirectly affected if construction activities result in degradation of aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills. These impacts would be significant. Over the long term, the project would benefit the species through the creation of additional and higher quality habitat, such as feathered edges and backwaters that would provide habitat for early life-stages.

MITIGATION MEASURES

Construction activities associated with the project could result in impacts to the foothill yellow-legged frog. Therefore, mitigation measures 4.7-5a, 4.7-5b, 4.7-5c, and 4.7-5d described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-6: Construction activities associated with the project could result in impacts to the western pond turtle.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related impacts to the western pond turtle would occur because the project would not be constructed. Therefore, there would be no impact. No significant impact was identified; therefore, no mitigation is required.

PROPOSED PROJECT

Riverine and riparian habitats along the Trinity River provide suitable habitat for the western pond turtle. Thus, construction activities associated with the Proposed Project could affect pond turtles directly and indirectly. Potential direct effects include mortality of individuals due to equipment and vehicle traffic, disturbance to nests in upland areas, and the loss of riparian cover. The species may also be indirectly affected if construction activities result in degradation of aquatic habitat and water quality due to erosion and sedimentation, accidental fuel leaks, and spills. These impacts would be significant. However, over the long term, the project would benefit the species through

the creation of additional and higher quality habitat. For example, removal of riparian berms would improve access to potential upland nesting and overwintering sites, and the creation of side channels and alcoves with LWD would provide slow-water basking and foraging habitat.

MITIGATION MEASURES

Construction activities associated with the project could result in impacts to the western pond turtle. Therefore, mitigation measures 4.7-6a, 4.7-6b, 4.7-6c, 4.7-6d, and 4.7-6e described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-7: Construction activities associated with the project could result in impacts to nesting Vaux's swift, California yellow warbler, and yellow-breasted chat.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related impacts to nesting California yellow warblers, yellow-breasted chats, and Vaux's swifts would occur. Therefore, there would be no impact.

PROPOSED PROJECT

The riparian community commonly found along the Trinity River in the project region provides suitable nesting and foraging habitat for the California yellow warbler and yellow-breasted chat. The conifer habitat in the region also provides habitat for the Vaux's swift. Consequently, project activities may result in impacts to these California Species of Special Concern. The Proposed Project may result in a temporary reduction of foraging and/or roosting habitat for these species. However, implementation of mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c would ensure that there is no net loss of riparian habitat. Furthermore, project implementation would result in a long-term increase in riparian habitat diversity, increasing the quality of the habitat for the California yellow warbler and yellow-breasted chat. Due to the temporary nature of the impacts and the regional abundance of similar habitats, the project is not expected to have a significant impact on habitat for the California yellow warbler, yellow-breasted chat, or Vaux's swift. However, the removal of vegetation and the noise associated with construction activities could disturb individuals nesting on or adjacent to the sites. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting individuals or any activities resulting in nest abandonment would be a significant impact.

MITIGATION MEASURES

Construction activities associated with the project could result in impacts to nesting Vaux's swift, California yellow warbler, and yellow-breasted chat. Therefore, mitigation measures 4.7-7a, 4.7-7b, 4.7-7c, and 4.7-7d described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-8: Construction activities associated with the project could result in impacts to nesting bald eagle and northern goshawk.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related impacts to active raptor nests would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

The hardwood and conifer communities commonly found along the Trinity River in the project region provide suitable nesting and foraging habitat for the bald eagle, designated by the State of California as endangered, and the northern goshawk, designated as a California Species of Special Concern. The Proposed Project may result in a temporary reduction of foraging and/or roosting habitat for these species. However, due to the temporary nature of the impacts and the regional abundance of similar habitats, the project is not expected to have a significant impact on habitat for the bald eagle or northern goshawk. Construction disturbance during the breeding season could result in the incidental loss of fertile eggs or nestlings, or otherwise lead to nest abandonment. Loss of fertile eggs or nesting bald eagles or goshawks, or any activities resulting in nest abandonment, would be a significant impact.

MITIGATION MEASURES

Construction activities associated with the project could result in impacts to nesting bald eagle and northern goshawk. Therefore, mitigation measures 4.7-8a, 4.7-8b, 4.7-8c, and 4.7-8d described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.7-9: Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related impacts to breeding special-status bats or the ring-tailed cat would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

The Trinity River riparian corridor provides suitable roosting and/or foraging habitat for four bat species: the long-eared myotis, pallid bat, Yuma myotis, and Townsend's western big-eared bat. Two of these bat species (long-eared myotis bat and pallid bat) may roost in trees (e.g., spaces under tree bark or in cavities) as well as caves and buildings, while the other two species (Townsend's western big-eared bat and Yuma myotis) prefer to nest in structures such as buildings, bridges, caves, and mines. For the long-eared myotis and pallid bat (species that roost in trees), habitat preference is typically woodland and forest habitat. It is unlikely that these bats would roost in the willows and alders typically found immediately along the Trinity River. However, they may roost in habitats more likely to contain large trees with cavities or loose bark, such as montane hardwood and foothill pine.

Noise and visual disturbances associated with construction activities may disrupt bats roosting within and directly adjacent to the project area. Further, removing large trees with cavities could result in the direct loss of colonies, which would be considered a significant impact.

Each of these bat species has the potential to forage in the project area. Foraging habitat typically consists of forested habitats in close association with water. Construction activities associated with

the Proposed Project could temporarily alter the foraging patterns of these species. However, this would be considered a less-than-significant impact based on the abundance of suitable foraging habitat in the region. No long-term adverse impacts to foraging habitat associated with project implementation are anticipated.

The Trinity River riparian corridor also provides habitat for the ring-tailed cat. The willows and alders found immediately along the river are unlikely to provide suitable denning habitat for this species due to the small size of the trees and lack of large cavities or snags. However, other habitats in the project area, such as montane hardwood and montane hardwood conifer habitats, may provide suitable denning sites. Thus, removal of large trees with cavities or snags could result in the loss of ring-tailed cats, which would be considered a significant impact. Construction activities would also result in a short-term reduction in foraging habitat for this species. However, the project would ultimately result in an increase in habitat and an increase in habitat quality for this species. Due to the abundance of similar habitat in the area, the temporary loss of foraging habitat would be a less than significant impact.

MITIGATION MEASURES

Construction activities associated with the project could result in impacts to special-status bats and the ring-tailed cat. Therefore, mitigation measures 4.7-9a, 4.7-9b, and 4.7-9c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.7-10: Construction activities associated with the project could result in the temporary loss of non-breeding habitat for special-status birds.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related impacts to non-breeding habitat for sensitive species would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

The Trinity River riparian corridor provides both foraging and perching habitat for golden eagles, American peregrine falcons, and black swifts, but suitable nesting habitat is absent. Construction activities associated with the project could temporarily alter the foraging patterns of these species; however, this impact would be considered less than significant based on the abundance of suitable foraging habitat in the vicinity of the Proposed Project. No long-term adverse impacts to foraging habitat associated with project implementation are anticipated. The loss of potential perch trees would not affect the abundance of these species or their use of the Trinity River for foraging habitat.

Impact 3.7-11: Construction activities associated with the project could result in impacts to BLM and USFS sensitive species (Pacific fisher).

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related impacts to BLM or USFS sensitive species would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Several of the special-status wildlife species with potential to occur at the sites are designated BLM or USFS sensitive species: foothill yellow-legged frog, western pond turtle, northern goshawk, little

willow flycatcher, Pacific fisher, long-eared myotis bat, pallid bat, Townsend's western big-eared bat, and Yuma myotis bat. With the exception of the Pacific fisher, potential impacts to these species are discussed as separate impacts above. The Pacific fisher may use the Trinity River as a travel corridor; however, suitable denning habitat is not present at the sites. Therefore, the impact would be less than significant.

MITIGATION MEASURES

Construction activities associated with the project could result in impacts to BLM and USFS sensitive species. Therefore, the following mitigation measures described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Mitigation measures 4.7-4a, 4.7-4b, and 4.7-4c would reduce impacts to the little willow flycatcher to a less than significant level. Mitigation measures 4.7-5a, 4.7-5b, 4.7-5c, and 4.7-5d would reduce the impacts to the foothill yellow-legged frog to a less than significant level. Mitigation measures 4.7-6a, 4.7-6b, 4.7-6c, and 4.7-6d would reduce the impacts to the western pond turtle to a less than significant level. Mitigation measures 4.7-8a, 4.7-8b, and 4.7-8c would reduce the impacts to the northern goshawk to a less than significant level, and mitigation measures 4.7-9a and 4.7-9b would reduce the impacts to special-status bat species to a less than significant level. Since no significant impacts for the Pacific fisher were identified, no mitigation is required.

Impact 3.7-12: Construction activities associated with the project could restrict terrestrial wildlife movement through the project area.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, construction-related restriction of terrestrial wildlife movement through the sites would not occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Construction noise and activity would not significantly impede the seasonal migration of the Weaverville deer herd from high-elevation summer habitats to lower elevation critical winter ranges in the project vicinity. Construction noise could temporarily alter foraging patterns of resident wildlife species, and vegetation removal along the river could temporarily disrupt wildlife movement through the area. However, no long-term impediments to wildlife movement within the sites are anticipated as a result of implementing the Proposed Project. Therefore, this would be a less than significant impact.

Impact 3.7-13: Implementation of the project could result in the spread of non-native and invasive plant species.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, the spread of non-native and invasive plant species would not occur as a result of construction activities because the project would not be constructed. Therefore, there would be no impact. No significant impact was identified; therefore, no mitigation is required.

PROPOSED PROJECT

Project implementation could result in the spread of non-native and invasive plant species (e.g., Dalmatian toadflax, yellow star-thistle, and Klamathweed) during ground-disturbing activities.

This would be considered a significant impact. However, further spread of weeds is not anticipated with implementation of the mitigation measures described below.

MITIGATION MEASURES

Implementation of the project could result in the spread of non-native and invasive plant species. Therefore, mitigation measures 4.7-13a, 4.7-13b, 4.7-13c, 4.7-13d, 4.7-13e, and 4.7-13f described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

3.8 Recreation

This section describes the recreation resources within the boundaries of the Wheel Gulch rehabilitation site and evaluates the effects of the Proposed Project on these resources. The project's conformance with the federal and state Wild and Scenic Rivers Acts (WSRAs) is also evaluated. Recreation resources are further addressed in the Trinity River Master EIR, Section 4.8.

3.8.1 Affected Environment/Environmental Setting

The Trinity River was designated as a National Wild and Scenic River in 1981. The designated reach extends from Lewiston Dam downstream to Weitchpec. Three tributaries to the Trinity River are also designated as Wild and Scenic: the New River, South Fork Trinity River, and North Fork Trinity River. There is one congressionally designated wilderness area in close proximity to the TRD. The Trinity Alps Wilderness provides recreational opportunities such as hiking, backpacking, horse packing, hunting, and angling. Located in the northern part of Trinity County, this wilderness area is the third largest in California and is a primary component of the Trinity River watershed. Two scenic byways cross Trinity County: the Trinity Heritage Scenic Byway and the Trinity Scenic Byway. These byways provide scenic travel routes through Trinity County for residents and visitors.

The federal government manages about 72 percent of the land in Trinity County. BLM is the primary land manager for public lands between Lewiston Dam and the confluence of the North Fork Trinity River, including lands in the corridor of the mainstem Trinity River. The STNF manages the Trinity unit of the Whiskeytown Shasta-Trinity National Recreation Area (NRA) and is the primary federal land manager between the confluence of the North Fork Trinity River and the mainstem Trinity River and the confluence of the New River and the Trinity River. The Six Rivers National Forest manages federal lands located between the New River and the Hoopa Valley Indian Reservation. The HVT manages lands within the Hoopa Valley Indian Reservation. The YT manages the reach of the Trinity River between Weitchpec (at the confluence of the Trinity the Klamath rivers) and the mouth of the Klamath River.

The Trinity River provides year-around recreation opportunities. These opportunities include boating, kayaking, canoeing, rafting, inner tubing, fishing, swimming, wading, camping, gold panning, nature study, picnicking, hiking, and sightseeing. Fishing for chinook salmon, steelhead, and rainbow and brown trout are major recreational activities on the Trinity River throughout the year. Developed recreation areas along the Trinity River consist of private campgrounds, resorts, and lodges; public campgrounds and picnic areas; and fishing access sites. Numerous river access sites occur between Lewiston Dam and Weitchpec. River access and recreational development is

concentrated around the communities of Lewiston, Douglas City, and Junction City. Developed and dispersed recreation facilities located in close proximity to the Wheel Gulch rehabilitation site are summarized in Table 12.

Table 12. Recreation Opportunities in the Vicinity of the Wheel Gulch Rehabilitation Site.	
<i>Developed Recreation</i>	
Big Foot Campground	Privately owned facility that provides overnight accommodations, river access sites, and a primitive boat launch site.
<i>Dispersed Recreation</i>	
River access sites	Numerous undeveloped river access sites are located near the project boundaries. These sites provide fishing access and primitive boat launch sites for rafts, canoes, kayaks, and other watercraft that can be carried to the Trinity River's edge. Cooper's Bar is nearest to the Wheel Gulch rehabilitation site and Lime Point and Lime Point Road are also nearby but further downstream.

3.8.2 Environmental Consequences/Impacts and Mitigation Measures

3.8.2.1 Methodology

The analysis of the potential effect on recreation resources as a result of the Proposed Project consists of identifying recreational resources (e.g., parks and recreation facilities) near the boundaries of the site and determining whether implementation of the action would impact these resources. This analysis is qualitative. In addition to evaluating the impacts on recreational resources, an evaluation was made of the project's consistency with Trinity County recreation objectives and state and federal Wild and Scenic River designations. The WSRA Section 7 Determination for the Remaining Phase 1 and Phase 2 sites is included as Appendix B of the Trinity River Master EIR.

3.8.2.2 Significance Criteria

Impacts associated with recreational uses would be significant if the project would:

- Conflict with established or planned recreational uses within the project boundary;
- Substantially affect existing recreational opportunities; or
- Result in an increase in the use of the existing neighborhood, regional parks, public lands in general, or other recreational facilities such that substantial deterioration of these facilities would occur or be accelerated.

The following criteria were used to determine if project impacts to riverine recreation would be significant:

- A substantial increase in turbidity so as to negatively affect recreation aesthetics;
- Incompatibility with the federal or state wild and scenic river designation, which is defined as jeopardizing the river's scenic, recreational, or fish and wildlife resources; or
- Non-compliance with Trinity County recreation resource objectives.

3.8.2.3 Impacts and Mitigation Measures

Table 13 summarizes the potential recreation impacts resulting from project implementation.

Table 13. Summary of Potential Recreation Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.8-1. Construction associated with the project could disrupt recreation activities, such as boating, fishing, and swimming, in the Trinity River.		
No impact	Significant	Less than significant
Impact 3.8-2. Construction of the project could result in an increased safety risk to recreational users or resource damage to recreational lands within the project boundaries.		
No impact	Significant	Less than significant
Impact 3.8-3. Construction activities associated with the project could lower the Trinity River's aesthetic value for recreationists by increasing its turbidity.		
No impact	Significant	Less than significant
Impact 3.8-4. Implementation of the project could affect Wild and Scenic River values.		
No impact	Less than significant	Not applicable ¹

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.8-1: Construction associated with the project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no disruption of recreation activities in the Trinity River, such as boating, fishing, and swimming, because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

The Trinity River supports instream recreational uses, primarily whitewater recreation and fishing. Various instream recreational activities occur throughout the year, but are most prevalent between the months of April and February. Access to the Trinity River is available from both public and private lands, and ranges from undeveloped or primitive use areas to fully developed commercial resorts. Although public use is restricted at most private river access points, public agencies, including BLM, STNF, CDFG, and DWR offer a number of public river access points throughout the 40-mile reach. Public river access is not only used for a variety of water-based recreational activities, but for other activities as well, such as wildlife viewing and picnicking.

During implementation of the Proposed Project, there would be construction equipment and activity within the active river channel, the floodplain, and adjacent upland areas in close proximity to the Trinity River. Project activities would include vegetation removal and grading. Overall, treatments proposed within the activity areas described in Chapter 2 could result in temporary interruptions of public access and use in the immediate vicinity of the activity areas. However, river access would continue to be available at a number of locations adjacent to the project boundaries. Although potential disruptions to recreational activities within the project boundaries would be temporary, this impact would be significant.

MITIGATION MEASURES

Construction associated with the project could disrupt recreation activities such as boating, fishing, and swimming in the Trinity River. Therefore, the following measures will be implemented to reduce the potential for impacts associated with the Proposed Project. Reclamation will provide precautionary signage to warn recreational users of the potential safety hazards associated with

project construction activities. Signs and/or buoys will be placed within and directly adjacent to the project boundaries along the Trinity River in accordance with the requirements specified in Title 14, Article 6 of the California Code of Regulations. Public notification of proposed project construction activities and associated safety hazards will be circulated in the local *Trinity Journal* newspaper prior to the onset of project construction. This measure would include installation of interpretive signage consistent with the requirements of the STNF and BLM. Preconstruction meetings between Reclamation and landowners/land managers would identify the amount of vegetative screening to be retained at the Wheel Gulch rehabilitation site. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.8-2: Construction of the project could result in an increased safety risk to recreational users or resource damage to lands within the project boundaries.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no safety risks to recreational users or resource damage to lands within the project boundaries because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

During construction of the Proposed Project, there would be heavy equipment activity and construction vehicle traffic operating within, and immediately adjacent to, the low-flow (450 cfs) channel of the Trinity River. Activities associated with in-channel treatments would require work within the river channel for a short period (anticipated to be < 1 month). However, work directly adjacent to the river might take through the duration of the construction period. Vehicular access to activity areas, including both uplands and in-channel, would be limited to authorized personnel.

Temporary, construction activities associated with the Proposed Project could pose a significant hazard to recreational users of the river and cause resource damage to recreational lands within the project boundary. Potential hazards to recreationists include the operation of construction equipment and vehicles in and around the rehabilitation site, changes in the river's subsurface movement as a result of the in-channel addition or removal of gravel, the addition of LWD into the channel, and an increased potential for a hazardous materials spill (e.g., diesel and hydraulic fluid) presented by construction equipment and vehicles operating in and adjacent to the river. Potential hazards to resources on recreational lands within the project boundaries include an increased potential for hazardous materials spills and unstable riverbanks and/or uplands resulting from excavation, material addition, road creation, and vegetation removal. These impacts would be temporary, but significant.

Post-construction, activity areas would be evaluated by Reclamation in conjunction with land managers and owners to identify specific prescriptions required to minimize any further potential safety risks to recreational users and to ensure the avoidance of any further project effects to resources occurring on recreational lands within the project boundaries.

MITIGATION MEASURES

Construction of the project could result in an increased safety risk to recreational users or resource damage to lands within the project boundaries. Therefore, mitigation measures described above for Impact 3.8.1 will be implemented to reduce the potential for impacts associated with the

Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.8-3: Construction activities associated with the project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, turbidity levels in the Trinity River would not increase because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Implementation of the Proposed Project could increase turbidity in the Trinity River for some distance downstream. The level of this increase would largely be dependent on the flow regime at the time of the discharge. Flows that typically contribute to good fishing tend to be clear thus, nominal increases in turbidity may affect the recreational experience of anglers and the aesthetic values held by other user groups. Water quality objectives for the Trinity River specifically prohibit the discharge of any materials into the river that could cause a nuisance or adversely affects beneficial uses (e.g., recreation).

The Regional Water Board's Basin Plan (North Coast Regional Water Quality Control Board 2007) includes two specific prohibitions directed at construction, logging, and other associated non-point source activities:

- The discharge of soil, silt, bark, sawdust, or other organic and earthen material from any logging, construction, or associated activity of whatever nature into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited.
- The placing or disposal of soil, silt, bark, slash, or sawdust or other organic and earthen material from any logging, construction or associated activity of whatever nature at locations where such material could pass into any stream or watercourse in the basin in quantities deleterious to fish, wildlife, or other beneficial uses is prohibited.

Implementation of the Proposed Project would increase the potential for turbidity and total suspended solids during construction activities. Fine sediments could be suspended in the river for several hours following in-channel activities. The extent of downstream sedimentation would be a function of the instream flow velocity and particle size. For example, fine-grained sediments like silts and clays could be carried several thousand feet downstream of the activity area, while larger-sized sediments like sands and gravels would tend to drop out of the water column within several feet of the construction limit. Increased turbidity and suspended solids levels would adversely affect water quality (refer to Section 4.5, Water Quality, of the Trinity River Master EIR) and could adversely affect anadromous fish species that are known to occur in the Trinity River (refer to Section 4.6, Fisheries Resources, of the Trinity River Master EIR), and could have a noticeable effect on the river's aesthetics. Increases in turbidity would be a significant impact.

MITIGATION MEASURES

Construction activities associated with the project could lower the Trinity River's aesthetic values for recreationists by increasing its turbidity. Therefore, the mitigation measures 4.5-1a, 4.5-1b, 4.5-1c, 4.5-1d, and 4.5-1e identified to protect water quality and described in Appendix B will be

implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of these mitigation measures would reduce the impacts to less than significant.

Impact 3.8-4: Implementation of the project could affect Wild and Scenic River values.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no adverse impacts to Wild and Scenic River values because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Construction and implementation of the Proposed Project would have a temporary effect on the scenic and recreational components of the Trinity River's Wild and Scenic River values. However, this temporary impact would be less than significant because the rehabilitation activities would ultimately enhance the overall form and function of the Trinity River, thereby enhancing the ORV for which it was designated a Wild and Scenic River. Temporary impacts on the scenic quality of the river are previously discussed under Impact 3.8-3 and in Section 3.12 (Aesthetics). The impact on Wild and Scenic River values would be less than significant because project activities would be temporary and would ultimately enhance the "natural" qualities of the river.

3.9 Socioeconomics

This section evaluates potential impacts on socioeconomic conditions, population, and housing from implementation of the Proposed Project at the Wheel Gulch rehabilitation site. This section is tiered to the detailed discussion of regional socioeconomic conditions, population, and housing in the Trinity River Master EIR (Section 4.9) as well as the information for the Phase 1 sites (Section 7.9). Information regarding poverty rates and population by race and ethnicity is included in Section 3.18, Environmental Justice. Much of the information in this section is derived from Trinity County 2007: Economic and Demographic Profile (Center for Economic Development 2007). Trinity County is a rural region with substantial amounts of public land and a minimal private land base. As a result, the region is largely dependent on natural resources and recreation-based industries for its economic base.

3.9.1 Affected Environment/Environmental Setting

3.9.1.1 Labor Market, Population, and Housing

The labor market, population, and housing discussions in the Trinity River Master EIR (Section 4.9) provide general information that applies to the Wheel Gulch rehabilitation site.

LABOR MARKET

The average total labor force in Trinity County between the years of 1991 and 2006 was 5,250 people (California Employment Development Department 2008; Center for Economic Development 2007). Annual variations have ranged from 4,850 people in 1999 to 5,420 people in 2003 (California Employment Development Department 2008; Center for Economic Development 2007). The majority of Trinity County's labor force is concentrated in Weaverville and Hayfork. Trinity County's unemployment rate has been and continues to be consistently higher than the California average. In December 2010 unemployment in Trinity County was 20.5 percent (California Employment Development Department 2011).

POPULATION

Trinity County's population continues to grow at a considerably lower rate than California on average, and was ranked by the U.S. Census Bureau as 54th in total population out of 58 California counties (U.S. Census Bureau 2008). Declines in the timber industry and an attendant loss of jobs have had a significant effect on the county's population.

The population of Trinity County is generally characterized by a higher proportion of white and retirement-age persons and lower proportions of Native American, Hispanic, and young working-age persons (Center for Economic Development 2007). The county's demographics are influenced by the large amount of federally owned land in combination with land used for private industrial timber production (10 percent), much of which is restricted from development due to zoning as a Timber Production Zone (Trinity County 2003). Thus, only about 15 percent of the county is private land usable for development purposes. The county's rugged terrain and remote location also influence its demographics by limiting the developable area. Most of the population of Trinity County is concentrated in Weaverville, Hayfork, and Lewiston. Education levels of residents are typical of most rural northern California counties, with a greater proportion of high school graduates and a smaller proportion of college graduates (Center for Economic Development 2007).

HOUSING

The total number of housing units in Trinity County in 2006 is estimated at 8,251 (U.S. Census Bureau 2008). The total number of occupied housing units is estimated at 5,587 (U.S. Census Bureau 2008). During the period of 2000 to 2007, there were 374 single family homes constructed in Trinity County; only two of these were multifamily units (California Employment Development Department 2008). The community of Junction City offers limited services, including several commercial enterprises, a USFS work station, a U.S. Post Office, and Junction City Elementary School. This community has two commercial sand and gravel operations, as well as several recreation-based businesses, which include RV parks, lodges, and rafting and fishing guides that operate along the Trinity River between Lewiston and Big Bar. These businesses provide economic benefits to the local community and the county; however, the Junction City community is primarily residential.

There is little likelihood that parcels in the vicinity of the Wheel Gulch rehabilitation site would be further subdivided because of its location in the floodplain, zoning restrictions, soils conditions, and minimal county services (e.g., community water service). Zoning designations within the community of Junction City are largely residential, with minimum parcel sizes ranging from 1 to 40 acres (Trinity County 2003). The Rural Residential zoning requires a minimum parcel size of 1 to 5 acres to retain the rural character of the area. In addition, portions of many parcels located directly adjacent to the river are designated as Flood Hazard and Open Space zones, restricting further development in these areas. Therefore, there is little potential for increased development densities in and around the project area. BLM-managed public lands in and adjacent to the Wheel Gulch rehabilitation site are primarily managed for resource and recreation uses, and planned development would need to be consistent with resource and recreation goals and objectives of agency management plans.

3.9.2 Environmental Consequences/Impacts and Mitigation Measures

3.9.2.1 Methodology

The following section provides a brief overview of the analytic methods used to assess the potential socioeconomic impacts of the Proposed Project. These methods included qualitative assessments of potential impacts associated with employment, income, conflicts with county and local plans, population growth, displacement of persons and businesses, and community disruption. For this assessment, Trinity County is considered to be the area of potential socioeconomic impact.

3.9.2.2 Significance Criteria

For purposes of CEQA, under which “[e]conomic or social impacts of a project shall not be treated as significant impacts on the environment,” project impacts on population and housing are relevant only if they either (i) directly relate to an impact on the physical environment, in which case a lead agency may, but need not, consider economic or social impacts in determining whether such physical impacts are significant, or (ii) would result in a reasonably foreseeable indirect impact on the physical environment (See CEQA Guidelines, § 15131). Under CEQA, a Proposed Project would have a significant impact on population and housing if it:

- Induces substantial growth in an area, either directly or indirectly;
- Displaces substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere; and/or
- Displaces substantial numbers of people, necessitating the construction of replacement housing elsewhere.

3.9.2.3 Impacts and Mitigation Measures

Table 14 summarizes the potential socioeconomic impacts that could result from implementation of the No-Project alternative and the Proposed Project.

Table 14. Summary of Potential Impacts on Socioeconomics for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
3.9-1. Construction of the project would provide temporary employment opportunities for construction workers in Trinity County.		
No impact	Beneficial	Not applicable ¹
3.9-2. Implementation of the project could result in the disruption or displacement of local businesses.		
No impact	Less than significant	Not applicable ¹
3.9-3. Implementation of the project would result in an increased demand for housing during construction.		
No impact	Less than significant	Not applicable ¹
3.9-4. Implementation of the project would result in concentrated population growth.		
No impact	Less than significant	Not applicable ¹

¹Because this potential impact is beneficial or less than significant, no mitigation is required.

Impact 3.9-1: Construction of the project would provide temporary employment opportunities for construction workers in Trinity County.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no employment opportunities would be created because the project would not occur. Therefore, there would be no impact.

PROPOSED PROJECT

Implementation of the Proposed Project at the Wheel Gulch rehabilitation site would generate temporary construction-related employment in Trinity County. The generation of employment would be a beneficial effect in the local economy, even if the employment is short-lived. The number of design, construction, and clerical positions required to complete the Proposed Project at the rehabilitation site is undetermined, but implementation of the rehabilitation activities is expected to add a small percentage to existing local jobs for the project duration. The duration of employment would be dependent on the length of the contracting and construction period (anticipated to be approximately six to ten months). Although the Proposed Project would provide direct local employment opportunities only if workers are hired from the local labor force, this potential impact would be beneficial.

Impact 3.9-2: Implementation of the project could result in the disruption or displacement of local businesses.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no disruption or displacement of local businesses would take place because the project would not occur. Therefore, there would be no impact.

PROPOSED PROJECT

No existing businesses are located within or directly adjacent to the boundaries of the Wheel Gulch rehabilitation site. Local businesses in the vicinity of the site would not be disrupted or displaced by activities associated with the Proposed Project. Construction equipment and vehicle access would not impair access to local businesses, and business operations would not be impaired. Businesses that operate on the river, such as rafting and fishing guides, would not be affected by a lack of access because there is not an existing river access point at this location along the Trinity River. Therefore, the impact would be less than significant.

Impact 3.9-3: Implementation of the project would result in an increased demand for housing during construction.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no increased demand for housing during construction would take place because the Proposed Project would not occur. Therefore, there would be no impact.

PROPOSED PROJECT

The area surrounding the community of Junction City is primarily a rural residential area, and few rental opportunities are available. What rental property does occur in adjacent rural residential areas is typically seasonal rental property available for recreational users. More readily available short-term apartment and single-family rentals are concentrated in the nearby community of Weaverville and, to a lesser degree, Hayfork.

Implementation of the Proposed Project would not result in the displacement of any individual from his or her home. It is not anticipated that any short-term increase in the demand for housing in Weaverville would occur as a result of construction workers seeking lodging during the project staging and construction period (primarily April through October) for the Wheel Gulch project. Based on the estimated increase in annual employment generated by the project (approximately 20 to 30 persons for the whole project as described in the Trinity River Master EIR), this would be a less than significant impact, both regionally and locally. In addition to accommodating the short-term demands for housing during previous TRRP rehabilitation projects, the nearby communities have been capable of meeting short-term increases in housing demands resulting from a large influx of fire suppression personnel on a recurring basis. This project would generate a much smaller number of housing needs in comparison to the housing demands generated by wildland fires, and the impact would occur only in the short term. Therefore, the impact would be less than significant.

Impact 3.9-4: Implementation of the project would result in concentrated population growth.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no population increases would occur during or after activities are implemented because the Proposed Project would not occur. Therefore, there would be no impact.

PROPOSED PROJECT

Implementation of the Proposed Project would require about 20 to 30 individuals at the Wheel Gulch rehabilitation site during implementation. An increase in population is not anticipated; if any increase were to occur it would likely occur on a seasonal basis. Based on current populations in the local communities, the projected number of workers that could move to the greater Weaverville area would result in a localized increase of less than 1 percent on a temporary basis. This amount would not constitute a significant change in population. Workers would likely be drawn from the local work force, which would further lessen population growth associated with project implementation. Overall, this impact would be less than significant.

3.10 Cultural Resources

This section summarizes the findings of a cultural resources records search and cultural resources report relevant to the Wheel Gulch rehabilitation site prepared by Reclamation archaeologists. Section 4.10 of the Trinity River Master EIR describes the prehistory, ethnography, and history of the Trinity River Basin and provides a general context for understanding the importance, origin, and types of cultural resources that are located within the area.

3.10.1 Affected Environment/Environmental Setting

3.10.1.1 Local History

Trinity County was primarily shaped by three economic pursuits: ranching, logging, and mining. Early settlers during the 1840s farmed, logged, and milled lumber (Colby 1982; Cox 1958; Medin 1998). This lifestyle was disrupted by the discovery of gold in Trinity County in 1848. Mining on the Trinity River was a significant industrial operation that contributed to the economic development of Trinity County beginning in the 1890s and continuing to the 1960s (Bradley, 1941; Jones 1981; Medin 2007). Boom towns quickly sprang up throughout the basin, with Weaverville

and Trinity Center being among the largest, and nearly every flat and bar along the river was subsequently prospected.

3.10.1.2 Site Assessment

An Area of Potential Effect (APE) for cultural resources was defined for the rehabilitation site. The APE consisted of a discrete area within and adjacent to the Trinity River that includes the restoration area in addition to access routes and staging for heavy equipment. Initially a records search was conducted in an effort to identify historic properties within the project boundary. Additionally, Reclamation cultural resources staff reviewed its cultural resource index and available literature in its report library. The record searches indicated that the APE had not been previously surveyed and no previously recorded cultural resources were located within the APE.

A field survey and inventory of the APE, performed by Reclamation archaeologists from June 23-24, 2009, was intended to identify and subsequently evaluate any cultural resources eligible for listing on the National Register of Historic Places (NRHP). No cultural resources were identified as a result of these efforts. Pursuant to stipulation IV(a) of the Programmatic Agreement (PA), Reclamation consulted with the Hoopa Valley Indian Tribe and Redding Rancheria Indian Tribe requesting their assistance in the identification of sites of religious and cultural significance. At the time of the report, July 21, 2009, Reclamation had not received a response from the tribe. Because the results of the survey and record search were negative within the APE of this project, stipulation IH(c)(1)(a) applies to this action. Pursuant to stipulation HI(c)(1)(a), the TRRP implementing action would be exempt from further consideration if the responsible federal agency's archaeologist determines that there are no cultural resources in the APE, after identification efforts are complete.

3.10.2 Environmental Consequences/Impacts and Mitigation Measures

3.10.2.1 Methodology

The APE for the cultural resource inventory and evaluation was established by Reclamation in accordance with the PA. Reclamation negotiated a PA with the California State Historic Preservation Offices (SHPO) and the Advisory Council on Historic Preservation in November of 2000 for Section 106 compliance regarding the Trinity River Main Stem Fishery Restoration Project. The PA outlines how Reclamation conducts Section 106 compliance as well as provides direction on how to deal with resources identified within the programmatic APE.

3.10.2.2 Significance Criteria/Determination of Effect

The activities within the rehabilitation site were evaluated to determine how they might affect cultural resources. Impacts on cultural resources are considered significant if implementation of the proposed project would potentially disturb unique cultural resources or properties on, or eligible for, the NRHP.

For historical resources, the lead agencies have reviewed both the federal NHPA and CEQA in order to determine thresholds of significance. CEQA provides that a project may cause a significant environmental effect if the project "may cause a substantial adverse change in the significance of an historical resource" (PRC, Section 21084.1). CEQA Guidelines Section 15064.5 defines a substantial adverse change in the significance of an historical resource to mean "physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines, Section

15064.5, subd. (b)(1)). CEQA Guidelines Section 15064.5, subdivision (b)(2), states that the significance of a historical resource is materially impaired when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the CRHR;
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the PRC or its identification in a historical resources survey meeting the requirements of Section 5024.1(g) of the PRC, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the CRHR as determined by a lead agency for purposes of CEQA.

With these definitions in mind, the lead agencies considered impacts on historical resources eligible for the NRHP or California Register of Historic Places (CRHR) to be significant if the project would alter their eligibility for the NRHP or CRHR by:

- Physically destroying or materially altering the characteristics of the historical resource that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR;
- Introducing visual, audible, or atmospheric elements out of character with the historical resource and its setting in such a way as to demolish or materially alter the characteristics that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR;
- Causing the historical resource to be subject to neglect to such a degree that the characteristics that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR would be materially impaired; or
- Resulting in the historical resource being transferred, leased, or sold, with the probability that the characteristics that convey its historical significance and justify its eligibility for listing on the NRHP or CRHR would be materially impaired.

In addition, based on CEQA Guidelines Section 15064.5 and Appendix G of the CEQA Guidelines, the Proposed Project would have significant effects if they would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to Section 15064.5;
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

3.10.2.3 Impacts and Mitigation Measures

Table 15 summarizes the potential cultural resource impacts resulting from construction and operation of the project.

Table 15. Summary of Potential Cultural Resources Impacts for the No-Project and the Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.10-1: Implementation of the proposed project could cause a substantial adverse change in the significance of a known cultural resource.		
No impact	Less than significant	Not applicable ¹
Impact 3.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.		
No impact	Potentially significant	Less than significant

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.10-1: Implementation of the proposed project could cause a substantial adverse change in the significance of a known cultural resource.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no effects on cultural resources because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Implementation of the Proposed Project would not adversely affect historic properties pursuant to 36 CFR Part 800.5(b). As previously discussed, the APE was surveyed for the presence of cultural resources and no sites were discovered. Therefore there would be no adverse affects to historic properties from the proposed river restoration activities.

Impact 3.10-2: Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no effects on cultural resources because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

TRRP rehabilitation activities have the potential to affect unknown cultural resources that may be present in any the rehabilitation site. In the event that any cultural resources or human remains are encountered during project implementation, all work in the area of the find would halt and Reclamation's Regional Archeologist would be immediately notified. Reclamation would follow the stipulations of the PA for compliance with the NHPA. If the discovery is determined to be a historic property that would be adversely affected by the rehabilitation activities, Reclamation would resolve the adverse affect by preparing a Historic Property Treatment Plan (HPTP) in accordance with Section III(d) of the PA. If human remains are discovered and identified as Native American, they would be treated according to provisions set forth in Section IV of the PA as well as the Native American Graves Protection and Repatriation Act. Any such impact related to the Proposed Project would be potentially significant.

MITIGATION MEASURES

Implementation of the proposed project could potentially result in disturbance of undiscovered prehistoric or historic resources. Therefore, mitigation measures 4.10-2a and 4.10-2b described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed

Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

3.11 Air Quality

This section evaluates the air quality impacts associated with implementation of the Proposed Project for the Wheel Gulch rehabilitation site. Air emissions from project activities are measured against federal and state standards. Air quality in the vicinity of the Wheel Gulch rehabilitation site is discussed in detail in the Trinity River Master EIR (Section 4.11.1). The information below is summarized from that document.

3.11.1 Affected Environment/Environmental Setting

CLIMATE AND TOPOGRAPHY

Trinity County has a climate characterized by hot, dry summers and cold, moderately wet winters (U.S. Department of Agriculture 1998). Most precipitation in the county results from major storms originating in the Pacific Ocean; however, short thunderstorms resulting from localized climate conditions occur in the summer months. The higher mountain ridges receive precipitation as snow and hold most of it until late spring. Precipitation in the lower elevations is dominantly rainfall, with occasional snow in the winter (North Coast Unified Air Quality Management District 1995). Trinity County has an average summer high temperature of 93.9°F and winter low of 27.3°F.

AIR QUALITY

The Trinity River Master EIR summarizes federal, state and local air quality requirements applicable to the project area. The 1977 federal Clean Air Act (CAA) requires the EPA to identify National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. Trinity County is part of the North Coast Air Basin, and is under the jurisdiction of the North Coast Unified Air Quality Management District (NCUAQMD). Similar to federal requirements, the 1988 California Clean Air Act (CCAA) outlines a program to attain the California Ambient Air Quality Standards (CAAQS). The county is currently in attainment with all federal air quality standards and most state air quality standards; however, the county is in non-attainment for the state particulate matter standards for particulate matter less than 10 microns in diameter (PM₁₀). The California Air Resources Board (CARB), California's state air quality management agency, regulates mobile source emissions and oversees the activities of the NCUAQMD. The North Coast Air Basin (NCAB) is comprised of five counties in northwest California: Del Norte, Humboldt, Trinity, Mendocino, and a portion of Sonoma County. NCUAQMD is responsible for monitoring and reporting air quality for Trinity County as well as two others.

Trinity County's air quality is generally good. The low population density, limited number of industrial and agricultural operations, and minimal traffic congestion problems contribute to the good air quality. Ambient air quality data is available from the Weaverville air monitoring station, which is located approximately 7 miles from the Wheel Gulch rehabilitation site. Air quality measured at the Weaverville station may not be a precise representation of ambient air quality in the immediate vicinity of the project but it does provide a good indication of air quality in the general vicinity.

CLIMATE CHANGE AND GREENHOUSE GASES

Climate change refers to a significant change in measures of climate, such as average temperatures, precipitation, and wind patterns, over time. Significant changes in global climate patterns have

recently been associated with global warming, an average increase in the temperature of the atmosphere near the Earth's surface, attributed to the accumulation of greenhouse gas (GHG) emissions in the atmosphere.

As of August 2007, CEQA lead agencies are required by law to analyze the potential of a Proposed Project to produce GHG emissions, which consist primarily of carbon dioxide (CO₂), nitrous oxide (N₂O), and methane (CH₄) (Public Resources Code Section 21083.05). The Governor's Office of Planning and Research (OPR) released a Technical Advisory in June 2008 (California Office of Planning and Research 2008) that provides guidance for addressing CEQA GHG environmental impacts. In particular, "Lead agencies should make a good faith effort, based on available information, to calculate, model, or estimate the amount of CO₂ and other GHG emissions associated with vehicular traffic, energy consumption, water usage and construction activities" (California Office of Planning and Research 2008).

SENSITIVE RECEPTORS

A sensitive receptor is a location where human populations, particularly children, seniors, and sick individuals, are present and where there is a reasonable expectation of continuous human exposure to pollutants. The project is not located near a hospital or senior housing. However, the project is near the elementary school in Junction City, adjacent to residential areas, and adjacent to outdoor recreation areas.

3.11.2 Environmental Consequences/Impacts and Mitigation Measures

3.11.2.1 Methodology

Data for the impacts analysis were taken from the following reports on local and regional air quality: Particulate Matter Attainment Plan (North Coast Unified Air Quality Management District 1995), California Air quality data statistics (California Air Resources Board 2008a), North Coast Rules and Regulations (North Coast Unified Air Quality Management District 2005), and the Trinity County General Plan (Trinity County 2003). The air quality analysis is qualitative, and was conducted by assessing anticipated construction-related impacts of the project and comparing them to existing and anticipated future air quality conditions.

3.11.2.2 Significance Criteria

According to Appendix G of the CEQA Guidelines, a project would normally have an adverse impact on air quality if it would:

- Violate any ambient air quality standard;
- Contribute substantially to an existing or projected air quality violation;
- Conflict with or obstruct implementation of any applicable air quality plan;
- Result in a cumulatively considerable net increase of any criteria pollutant (e.g., PM₁₀) for which the region is in non-attainment under an applicable state ambient air quality standard;
- Expose sensitive receptors to substantial pollutant concentrations;
- Result in substantial air emissions or deterioration of air quality;
- Create objectionable odors;
- Alter air movement, moisture, or temperature, or result in any change in climate, either locally or regionally;

- Produce toxic air contaminant emissions that exceed the air pollution control district's threshold level for health risk; or
- Result in a substantial increase or cumulatively considerable net increase in GHG emissions (e.g., CO₂).

Since the first two criteria include violation of either federal or state air quality standards, these criteria would also be used to determine significance for NEPA compliance. The NCUAQMD has not formally adopted a CEQA threshold of significance for criteria pollutants such as CO, NO_x, PM₁₀, and SO₂, but does use the significant emission rates listed in Table 4.11-3 of the Trinity River Master EIR as a baseline when evaluating a project's potential impacts to air quality.

3.11.2.3 Impacts and Mitigation Measures

Table 16 summarizes the potential air quality impacts that would result from the No-Project alternative and the Proposed Project.

Table 16. Summary of Potential Air Quality Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
3.11-1. Construction activities associated with the project could result in an increase in fugitive dust and associated particulate matter (PM ₁₀ and PM _{2.5}) levels.		
No impact	Significant	Less than significant
3.11-2. Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.		
No impact	Significant	Less than significant
3.11-3. Construction activities and removal of vegetation associated with the project could result in vegetative materials that managers may decide to burn.		
No impact	Significant	Less than significant
3.11-4. Construction and transportation activities associated with the project could result in an increase of greenhouse gas emissions and effects on climate change.		
No impact	Less than significant	Not applicable ¹
3.11-5. Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools.		
No impact	Significant	Less than significant

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.11-1: Construction activities associated with the project could result in an increase in fugitive dust and associated particulate matter (PM₁₀ and PM_{2.5}) levels.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no construction-related increase in fugitive dust and associated particulate matter levels because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Rehabilitation associated with the Proposed Project would require excavation, grading, disposal of earthen materials, and the use of heavy equipment and travel on unpaved roads, which would temporarily contribute fugitive dust in the project area. Fugitive dust emissions would also result from activities associated with vegetation removal and gravel injection. As discussed previously,

these sources of fugitive dust are associated with PM₁₀, a criteria pollutant, for which the air basin is in non-attainment.

High levels of PM₁₀ in Trinity County generally coincide with regional wildland fire events during the dry summer months, and with periods of cool, wet weather when localized woodstove use and brush burning activities contribute particulate matter to the air. Fugitive dust resulting from project activities would occur during the dry summer and early fall months, when PM₁₀ levels may be elevated by wood stove use, brush burning, or wildland fires.

As described in Appendix A, the project includes NCUAQMD-required measures to minimize fugitive dust in and adjacent to the rehabilitation site. Once rehabilitation activities cease at the site, the resulting impact on air quality would also cease. While the project design minimizes fugitive dust, project generated fugitive dust would be considered a significant impact because the air basin is in non-attainment status for particulate matter. The impact would be temporary (during rehabilitation).

MITIGATION MEASURES

Construction activities associated with the project could result in an increase in fugitive dust and associated particulate matter (PM₁₀ and PM_{2.5}) levels. Therefore, mitigation measure 4.11-1a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.11-2: Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no increase in construction vehicle exhaust emissions would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Construction associated with the Proposed Project would require the use of equipment that would temporarily contribute to air pollution in the Trinity River Basin. Exhaust emissions from heavy equipment during construction could contribute to air pollution. Project construction activities would generate emissions from diesel- and gasoline-powered equipment and vehicles. Diesel particulate is an identified Hazardous Air Pollutant (HAP) and (Toxic Air Contaminant) TAC, emissions of which should be minimized. In this regard, construction activities would require the contractor to comply with NCUAQMD Rule 104 (3.0) Particulate Matter or use portable internal combustion engines registered and certified under the state portable equipment regulation. Because diesel particulate matter is both a HAP and a TAC, and because these pollutants would be emitted as a result of project implementation, the Proposed Project would have a significant impact on air quality.

MITIGATION MEASURES

Construction activities associated with the project could result in an increase in construction vehicle exhaust emissions. Therefore, mitigation measure 4.11-2a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.11-3: Construction activities and removal of vegetation associated with the project could result in vegetative waste materials that managers may decide to burn.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no vegetative waste materials that would need to be burned because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Implementation of the Proposed Project would include vegetation removal resulting in vegetative material that would be buried, piled to create wildlife habitat, chipped, or burned. Though vegetative materials are most frequently chipped and added back to the floodplain or upland area to enhance growing conditions, occasionally burning of vegetation (e.g., weedy materials) is completed. Piling and burning is a quick and economical way to eliminate flammable biomass and reduce concentrations of wildland fuels. Brush piles set aside for burning would be left intact until site construction is finished, and subsequently burned under the direction of Reclamation, consistent with USFS, BLM, and Cal Fire requirements. Burning vegetation in the fall/winter period (November-April) would eliminate effects to nesting birds. In the event that piles are burned, smoke would temporarily contribute to air pollution in the Trinity River Basin. Burning vegetation would contribute particulate matter to the air, a criteria pollutant for which the basin is in non-attainment. Therefore, the impact would be significant.

MITIGATION MEASURES

Construction activities and removal of vegetation associated with the project could result in vegetative waste materials that managers may decide to burn. Therefore, mitigation measures 4.11-3a, 4.11-3b, and 4.11-3c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.11-4: Construction and transportation activities associated with the project could result in an increase of greenhouse gas emissions and effects on climate change.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Transportation and construction activity associated with project implementation would generate GHG emissions from diesel- and gasoline-powered vehicles and equipment. Burning vegetation would also emit CO₂, which is a GHG. Several measures are identified in Appendix A that are intended to reduce the impacts relative to climate and GHGs. These measures are incorporated into the Proposed Project. Additionally, the following measures would be used to enhance the awareness of global warming in conjunction with the Proposed Project:

- Provide project contractors with educational material about fuel efficiency and incentives;
- Promote incentives for contractors to initiate ride-sharing programs;
- Promote the use of energy efficient and alternative fuel construction equipment and transportation fleets through contract incentives;
- Require contractors to provide recycling bins for on-site waste materials;

- Provide incentives for contractors to use re-usable water containers rather than plastic bottled water;
- Provide incentives for contractors to hire locally;
- Require re-useable batteries for equipment that can use them.

In order to determine the significance of the impact of the rehabilitation project, a “carbon footprint” was estimated in the Trinity River Master EIR based on the Proposed Project’s generation of GHGs (primarily CO₂) from project activities at the remaining Phase 1 sites. Project activities that would offset potential impacts were weighed into the equation. The analysis in the Trinity River Master EIR determined that rehabilitation at all of the remaining Phase 1 sites would produce approximately 3 metric tons of CO₂ per day over the life of the project. Total GHG emissions resulting from the proposed activities would be approximately 2,050 metric tons of CO₂.⁶ Vegetation replanting and natural re-seeding within the existing riparian area would offset the total project GHG emissions by approximately 20 metric tons of CO₂ over a five-year period. Additionally, project activities may result in opportunities to increase the amount of riparian and upland vegetation.

Based on those calculations, which estimate the project’s carbon emission, the Trinity River Master EIR determined that rehabilitation at the remaining Phase 1 sites would not generate significant increases in GHGs or an ongoing increase in the demand for off-site energy production because there would be no new facilities constructed. While the project’s GHG emissions associated with the use of heavy equipment would be measurable over the course of the project, GHG emissions and any effects on global climate change would not be cumulatively significant considering the amount of GHG emissions generated by the rehabilitation and the current local air quality conditions. Overall, the impacts of the rehabilitation activities would be less than significant with respect to GHG. As a result, the Proposed Project for the Wheel Gulch rehabilitation site would result in impacts that would be less than significant because it represents a much smaller action than that analyzed in the Trinity River Master EIR.

Impact 3.11-5: Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction or transportation activities would occur because the project would not be implemented. Therefore, there would be no impact. No significant impact was identified; therefore, no mitigation is required.

PROPOSED PROJECT

Construction activity associated with the Proposed Project would generate fugitive dust, gas, and diesel emissions and the project could generate smoke from vegetation burn piles; all of which could expose a number of adjacent residents and the nearby elementary school to air pollutants. Schools and residences are considered sensitive receptors. Therefore, this would be a significant impact.

⁶ The mobile combustion CO₂ Emissions Calculation Tool was used to calculate GHG emissions for combustible fuel (Greenhouse Gas Protocol Initiative 2005), and the Construction Carbon Calculator was used to calculate GHG emissions for vegetation loss (BuildCarbonNeutral 2007). The calculation is based on 23 days of construction per site as estimated for the Remaining Phase 1 sites and includes diesel fuel combustion and loss of vegetation.

MITIGATION MEASURES

Construction activities would generate short-term and localized fugitive dust, gas, and diesel emissions, and smoke that could affect adjacent residences and schools. Therefore, mitigation measures 4.11-5a, 4.11-5b, 4.11-5c, and 4.11-5d described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

3.12 Aesthetics

This section describes the aesthetic values and visual resources that are known to occur within the Wheel Gulch rehabilitation site boundaries and evaluates the effect that the Proposed Project could have on these values and resources. More details about this resource are described in the Trinity River Master EIR (Section 4.12).

3.12.1 Affected Environment/Environmental Setting

3.12.1.1 Visual Environment

The visual environment, or character, is a function of both the natural and artificial landscape features that make up a view. Geologic, hydrologic, botanical, wildlife, recreational, and urban features such as roads, homes, and earthworks directly influence the visual character of an area. The perception of the visual character of an area can vary significantly by season and even by hour as light, shadow, weather, and the elements that compose the view change. Form, line, color, and texture are the basic components used to describe visual character and quality for most visual assessments (Federal Highway Administration 1983). The dominance of each of these components on the landscape serves to form the viewer's impression of the area. A viewer's impression directly corresponds to the aesthetic value of the landscape. The aesthetic value of an area is a measure of its visual character and scenic quality combined with the viewer response.

The visual character of the Trinity River as a whole is typified by the river channel, bordered by bands of riparian vegetation interspersed between homes, businesses, and, occasionally, deposits of dredge tailings. The riparian vegetation transitions to upland vegetation as the viewer moves away from the river. The location and boundaries of the Wheel Gulch rehabilitation site are illustrated in Figure 3. Adjacent roads offer varying degrees of river and rehabilitation site views, and many of the homes adjacent to the site have partial to complete views of the river and the rehabilitation site. The Wheel Gulch rehabilitation site is partially visible from the scenic byway (SR-299) that passes through Trinity County.

VIEWER GROUPS

The Wheel Gulch rehabilitation site is subject to the perceptions of the following three distinct viewer groups: motorists, residents, and recreationists. Motorists are those persons who would view the site from a moving vehicle. Motorists may be drivers or passengers. Views of the river corridor from the roadway are somewhat limited and of short-duration for motorists. Residents are people whose homes and/or property are in close proximity to, and have a view of, the Wheel Gulch rehabilitation site or a portion of a site. The individual sensitivity of residents to aesthetics and changes within a viewshed is highly variable. Recreationists are members of the community or the general public who use the recreational resources available within or adjacent to the site. Like residents, recreational users are highly sensitive to the visual character of the river corridor since

most are drawn to the area by an appreciation of its scenic nature. The Trinity River, particularly the reach below Lewiston Dam, provides a myriad of recreational opportunities that are discussed in Section 3.8 (Recreation).

LIGHT AND GLARE

Because of the rural nature of the Trinity River corridor, the primary sources of artificial light are limited to vehicles passing through the area on state, local and private roads; concentrations of commercial/residential buildings; and, to a lesser degree, recreational features and facilities. Glare may occur during the daylight hours as the sun is reflected off the river or light-colored alluvium associated with the Trinity River floodplain.

VISUAL ASSESSMENT UNITS AND KEY OBSERVATION POINTS

The Federal Highway Administration (1983) defines a viewshed as all of the surface area visible from a particular location (e.g., a highway pull-out) or sequence of locations (e.g., a highway or trail). Viewsheds are referred to as Visual Assessment Units (VAUs) throughout this section of the document. VAUs are established to represent views of visually sensitive resources observed from various locations surrounding homes, public access areas, or roads in the project vicinity. VAUs provide a framework for comparing the visual effects of a proposed project.

A single VAU named WGH1 was defined for the Wheel Gulch rehabilitation site based on visibility from surrounding homes or public access areas along SR-299, Red Hill Road, Wintu Pass Road, Valdor Road, and River Acres Road. Key observation points⁷ (KOPs) are identified within a VAU, along commonly traveled routes or other likely observation points from which a representative group (i.e., residents, recreationists, or motorists) could view rehabilitation sites. Six discrete KOPs (some including multiple aspects) were established within the VAU for the Wheel Gulch rehabilitation site. Table 17 provides a brief description of the KOPs. Locations of the KOPs are shown on Figure 9 and representative photographs of the area are included as Table 18.

Table 17. Key Observation Points for the Wheel Gulch Rehabilitation Site.	
KOP	Description of Key Observation Points
WGH1-1	View from river right along SR-299, looking downstream into the project area.
WGH1-2	View from river right along SR-299, looking toward the river into the project area.
WGH1-3	View from river right at intersection of Valdor Road and SR-299, looking upstream into the project area.
WGH1-4	View from Valdor Road, overlooking the project area.
WGH1-5	View from river left on River Acres Road, looking directly into the river and project area.
WGH1-6	View from river left at the intersection of Wintu Pass and Red Hill Road, looking north-northeast toward the river.

⁷ Points from which the project boundary or portions thereof are visible from sensitive receptor areas, such as major travel routes and/or surrounding homes.

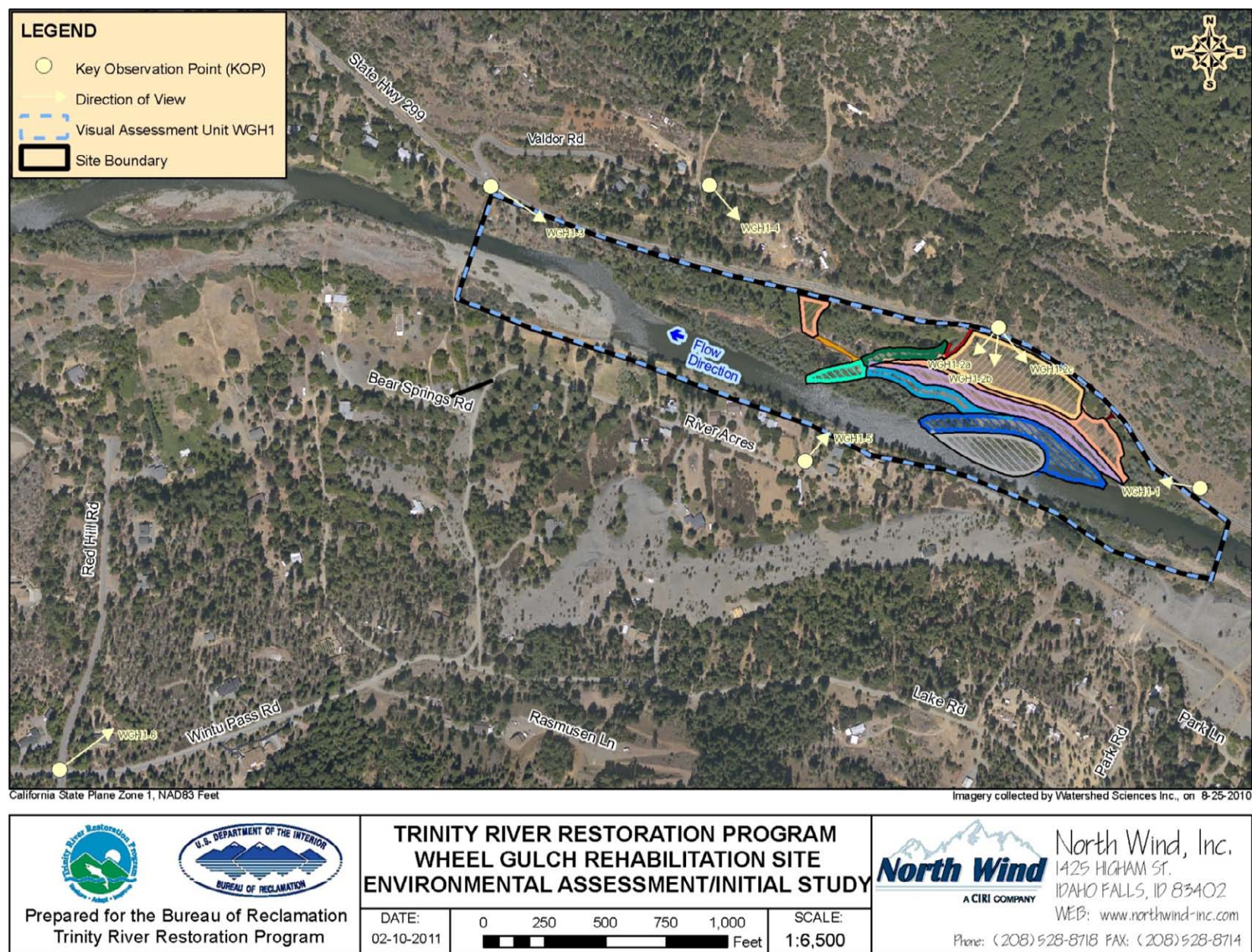


Figure 9. The Wheel Gulch Visual Assessment Unit (WGH1) with six key observation points (KOPs).

Table 18. Photographs of Views from Various Key Observation Points.



Photo 1. View from SR-299 traveling east between KOP WGH1-3 and KOP WGH1-2.



Photo 2. View from SR-299 at KOP WGH1-2.



Photo 3. View of dense vegetation at intersection of Red Hill Road and Wintu Pass, WGH1-6.



Photo 4. View of dense riparian vegetation on north river bank.

Views of the Wheel Gulch rehabilitation site from the north bank of the river are visible from some locations when seen from SR-299. This road is elevated above the river, and openings in the roadside vegetation afford motorists brief views of the site. Traveling west on SR-299 the project area would be visible in certain locations as one travels around the corner and by the project area (KOP WGH1-1).

Although the river channel itself is somewhat obscured from the view of motorists, the large meadow that comprises a portion of the site where some construction activity (Activity Area U-1) would occur is highly visible (KOP WGH1-2). Portions of upland activity areas may be visible from KOP WGH1-2, but in-channel work may not be apparent from this location.

Views looking upstream into the site are limited by vegetation and topography. As vehicles are stopped at the intersection of SR-299 and Valdor Road (KOP WGH1-3) trying to come onto SR-299, portions of the project area would be visible looking upriver although there would be some

screening due to distance, the lower elevation of the river channel compared to the road, and vegetative screening from trees along the road. The project area would be visible in some locations driving up river along SR-299 from this point.

There are a few homes situated adjacent to Valdor Road above SR-299 at the downstream end of the site from which the project area may be visible (KOP WGH1-4). This location is situated above the project area but topography and dense vegetation along the road provide screening such that the project area is not visible.

On the south bank of the Trinity River, there are several homes adjacent to the site. Access to these homes is via Red Hill Road to Wintu Pass and then to River Acres Road. Dense upland vegetation obscures views of the river and the rehabilitation site from Red Hill Road and Wintu Pass (KOP WGH1-6). However, the site would be visible from portions of River Acres Road and homes adjacent to the road that have views looking directly into the site (KOP WGH1-5). Activities taking place in the Wheel Gulch rehabilitation site would be visible from the residential area on the left bank of the river. There is some vegetative screening that would reduce the visibility in certain locations but portions of the project would likely be visible. Aside from the few homes that front the river bank, most homes along the left side of the river do not have views of the site due to screening by vegetation and topography.

WILD AND SCENIC RIVERS

The site is located within the corridor of the Trinity River designated under the federal and state Wild and Scenic Rivers acts. A review of the consistency of the Proposed Project and its alternatives with federal and state Wild and Scenic River designations is presented in Appendix B of the Trinity River Master EIR.

3.12.2 Environmental Consequences/Impacts and Mitigation Measures

3.12.2.1 Methodology

Analysis of potential impacts to aesthetic resources relative to the Wheel Gulch rehabilitation site is based on the significance criteria described in Appendix G of the CEQA Guidelines (Association of Environmental Professionals 2008). The Regional Water Board, acting as the CEQA lead agency, has used these criteria to develop significance thresholds. Significance thresholds are used to evaluate the proposed project's potential impact on the visual character of the project area with an emphasis on VAUs that are selected to characterize the aesthetic values and visual resources. This section provides a general discussion of the type and magnitude of impacts that could occur as a result of the project. The assessment is qualitative, with the potential impacts of the Proposed Project to the viewshed evaluated in the context of the Trinity River corridor. A review of the consistency of the Proposed Project with federal and state Wild and Scenic River designations is presented in Appendix B of the Trinity River Master EIR.

3.12.2.2 Significance Criteria

The project would have a significant impact if it:

- Obstructs a scenic view from public viewing areas;
- Has a substantial adverse effect on a scenic vista;
- Substantially damages scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway;

- Substantially degrades the existing visual character or quality of the rehabilitation site and its surroundings;
- Introduces physical features that are substantially out of character with adjacent residential areas;
- Alters the site so that the scale or degree of change appears as a substantial, obvious, and disharmonious modification of the overall scene (to the extent that it clearly dominates the view);
- Creates substantial daytime glare associated with new construction;
- Disrupts adjacent residential areas because of new night-time lighting;
- Creates a new source of substantial light or glare that would adversely affect day or nighttime views in the site;
- Is inconsistent with the policies of the trinity county and local general plans relating to aesthetics; or
- Is inconsistent with the goals and objectives of either the federal or state wsra with regards to the Trinity River.

3.12.2.3 Impacts and Mitigation Measures

Table 19 summarizes the potential aesthetic impacts resulting from implementation of the No-Project alternative and Proposed Project.

Table 19. Summary of Potential Aesthetic Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project with Mitigation
Impact 3.12-1. Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.		
No impact	Significant	Less than significant
Impact 3.12-2. Implementation of the project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features.		
No impact	Less than Significant	Not applicable ¹
Impact 3.12-3. The project may be inconsistent with federal and state Wild and Scenic River acts or Scenic Byway requirements.		
No impact	Less than significant	Not applicable ¹
Impact 3.12-4. The project could generate increased daytime glare and/or nighttime lighting.		
No impact	Less than significant	Not applicable ¹

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.12-1: Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, the degradation and/or obstruction of a scenic view from key observation areas would not occur as a result of construction activities because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Potential impacts of the Proposed Project within the Wheel Gulch VAU would include changes brought about by the removal of vegetation, construction of inundated surfaces, new access roads,

and the creation of staging and gravel processing areas. These various activities are intended to restore the form and function of an alluvial river, thereby enhancing the overall aesthetic values and visual resources associated with the Trinity River and the surrounding landscape. While these impacts are expected to be temporary in nature and the long-term outcome should improve the visual diversity of the corridor, the short-term impacts would persist for some period.

Impacts to aesthetics in this unit would be potentially significant, particularly when viewed from KOPs WGH1-1, WGH1-2, WGH1-3, and WGH1-6. Proposed activities in the channel would have a significant impact on the visual environment. However, because Proposed Project activities are intended to restore the form and function of an alluvial river, potentially adverse visual impacts occurring during construction would be temporary, lasting only until natural processes take over.

Portions of Activity Areas U-1, C-2, C-3, R-1 and R-5 would be visible from KOP WGH1-1 as motorists travel westbound along SR-299. Consequently, under the Proposed Project, virtually all of the construction activities in this portion of the site would have a noticeable effect on the view's aesthetic quality. This view would be brief as seen by motorists traveling along this route and would be buffered to some extent by topography, vegetation, and distance limiting the extent of views of the site. The elevation of the road allows for views of the north side of the floodplain but most direct views of the river are obscured by dense riparian vegetation and topography.

The openness of the floodplain adjacent to KOP WGH1-2 would allow for the majority of the proposed activities to be visible from this location depending on the direction the motorist is facing. The elevation of the road allows for expansive views of the river corridor and the north side of the floodplain. Traveling west on SR-299 and looking downstream a motorist could see portions of Activity Areas U-1 and C-1, as well as possibly Activity Areas R-2, R-4, and R-5. However, vehicles would only have brief glimpses of the project area due to denser vegetation farther downstream; the lower portion of the project area (Activity Area R-3) cannot be clearly seen by motorists in this location. If a motorist were looking directly at the river from this location (WGH1-2b), Activity Areas U-1, R-1, R-2, R-5, and possibly Activity Area IC-1 would be visible. Traveling east on SR-299 and looking upstream a motorist could see portions of Activity Areas U-1, C-3, R-1, R-5, and possibly Activity Area IC-1. The lower portion of the project area (Activity Areas C-5, C-4 and R-3) may be visible from KOP WGH1-3. However, views of the site from this location (see photo 2 in Table 18) would be obstructed by vegetation, topography, and distance. It is approximately ¼ mile from this KOP to the nearest proposed activities.

Construction activities proposed at the site would have a less than significant effect on the visual environment as viewed from KOP WGH1-4. A few scattered homes occur on Valdor Road on a hilltop overlooking the rehabilitation site. Both the homes and the road are set back some distance from the edge of the hill and river views from this location are buffered by vegetation, topography, and distance. Homes adjacent to River Acres Road (KOP WGH1-5) would have river views from the south side of the river. Proposed construction activities would be visible from homes immediately adjacent to this KOP. From surrounding homes, viewers can see various parts of the site, depending on aspect. Parts of the riverine Activity Areas R-1, R-2, and R-3 and the in-channel construction Activity Area IC-1 would be visible from homes in the uplands adjacent to the left side of the river. Some homes in the area would also have views of Activity Areas C-4 and C-5. Although the existing vegetation buffer would obstruct some views of construction from the road and nearby homes on the south bank these impacts would be significant.

As shown by the photograph taken at KOP WGH1-6 (see photo 3 in Table 18), topography, vegetation, and distance obstruct the views of the site as seen by motorists traveling along Red Hill Road and Wintu Pass as well as residents living in homes along these routes. Because views of the river and rehabilitation site from Red Hill Road and Wintu Pass are obstructed impacts would be less than significant.

Project-related visual changes in the rehabilitation site would be apparent to in-channel recreationists. In-channel recreationists such as rafters would have unobstructed views of much of the in-channel construction Activity Areas IC-1 through IC-3 as well as proposed riverine Activity Areas R-1, R-3, and some of R-5. In order to observe upland project activities from the north bank of the river, a viewer would have to walk onto the site because of the density of riparian vegetation common to the Trinity River and, specifically, to this site (see photo 4 in Table 18).

MITIGATION MEASURES

Implementation of the project could result in the degradation and/or obstruction of a scenic view from key observation areas. In order to minimize impacts to visual resources resulting from the removal of vegetation in the project area, mitigation measures 4.7-1a, 4.7-1b, and 4.7-1c, as described in Section 3.7 (Vegetation, Wildlife, and Wetlands), will be implemented where applicable. Visual impacts related to water quality (e.g., the potential for increased turbidity to adversely impact the aesthetic quality of the river) would be mitigated through the implementation of mitigation measures 4.8-3a, 4.8-3b, 4.8-3c, 4.8-3d, 4.8-3e, and 4.8-3f, as described in Section 3.8 (Recreation), where applicable. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.12-2: Implementation of the project could substantially change the character of, or be disharmonious with, existing land uses and aesthetic features.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, the proposed project would not be constructed. No changes would occur to the character or harmony of aesthetic features and existing land uses. Therefore, there would be no impact.

PROPOSED PROJECT

Activities associated with the Proposed Project are intended to be not only functional (e.g., enhance fisheries and restore river sinuosity), but to complement the aesthetic values and visual resources associated with the rehabilitation site. Overall, the Proposed Project incorporates the project area's diversity of landscapes and vegetation types to define the location, character, and magnitude of the rehabilitation activities at the site. For example, materials excavated from riverine areas would be removed to upland areas or used as a source of coarse sediment to enhance the alluvial function of the river. Material transported to upland activity areas would be placed in a manner that blends the materials into the contours of the topography. Retention of existing topographic features would significantly lessen the degree of visual impact.

The activities described in Chapter 2 provide a framework for reestablishing the physical process necessary to enhance the alluvial attributes of the river channel and floodplain over time, particularly those attributes that are flow dependent. Over time, the Proposed Project would produce gradual, ever-improving changes in the aesthetic quality of this reach of the Trinity River, while maintaining the character of the surrounding land uses. Because changes associated with the

Proposed Project would retain the character of existing land uses and features, implementation would result in a less than significant impact on aesthetic resources.

Impact 3.12-3: The project may be inconsistent with the federal or state Wild and Scenic River Acts or Scenic Byway requirements.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, the proposed project would not be constructed. No changes would occur that would be inconsistent with the federal or state Wild and Scenic Rivers acts or Scenic Byway requirements. Therefore, there would be no impact.

PROPOSED PROJECT

Under Section 7 of the WSRA, direct and adverse effects to the values for which the Trinity River was recognized as a Wild and Scenic River are prohibited. Implementation of the Proposed Project would be consistent with these values because the activities would not be considered substantially out of character with the current aesthetic conditions. Implementation of the Proposed Project would result in a less than significant impact to WSRA and Scenic Byway requirements.

Impact 3.12-4: The project could generate increased daytime glare and/or nighttime lighting.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no changes in daytime glare or nighttime lighting would occur because the proposed project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Under the Proposed Project, significant increases in daytime glare and/or nighttime lighting are not anticipated to occur. Construction activities would not take place during nighttime hours; therefore, nearby homes and motorists traveling on roads adjacent to the river corridor would not be subjected to the headlights of construction equipment or stationary spotlights. Material removed from the floodplain and deposited at various activity areas is generally not reflective and would not increase the level of daytime glare observable to the viewer. Some changes may occur in the locations and amounts of glare produced by water over the constructed inundation surfaces, but, overall, these changes would be short-lived and variable by day, as well as season. The impacts of these changes would therefore be less than significant.

The most likely viewer group to be affected by daytime glare would be residents, but this would affect only a few residences at any one time. Occurrences of daytime glare produced by the sun reflecting off the water or construction equipment would be of short duration, or temporary. Such an impact would be less than significant.

3.13 Hazards and Hazardous Materials

3.13.1 Affected Environment/Environmental Setting

This section evaluates hazards and hazardous materials that may currently be present within the Wheel Gulch rehabilitation site boundaries. The potential for using hazardous materials or generating hazardous waste in conjunction with rehabilitation activities is discussed in the Trinity River Master EIR (Section 4.13). Hazardous materials and the potential for health hazards to be generated by implementation of the Proposed Project are also assessed in this section.

HAZARDOUS MATERIAL AND HAZARDOUS WASTE

Federal, state, and local agencies regulate hazardous materials and hazardous waste. Nonetheless, illegal storage and disposal and unintentional releases of hazardous materials or waste from leaks and accidents can occur when hazardous materials are used or hazardous waste is generated by a project. Regional roadways including SR-299 and Red Hill Road are frequently used to transport hazardous materials throughout Trinity County. Under the California Code of Regulations (CCR), Title 13, Section 1150-1194, and CFR, Title 49, the California Highway Patrol (CHP) regulates the transport of hazardous materials. When a spill of hazardous material or waste occurs on a highway, the CHP is responsible for directing cleanup and enforcement (CCR Section 2450-2453b).

ROADWAYS AND EVACUATION ROUTES

The Wheel Gulch rehabilitation site is immediately adjacent to SR-299 and access to the north side of the site would be made from that road. SR-299 is one of the more heavily traveled roadways in the area. The stretch of road adjacent to the rehabilitation site is relatively straight, with two-lanes, and visibility that allows for fairly high rates of speed (greater than 45 mph). The south side of the site is accessed from Red Hill Road and several short roads, and private driveways that extend toward the Trinity River from River Acres Road. No access to the rehabilitation site would occur from the south (left) bank of the river. SR-299 would serve as the primary evacuation route for the north side of the site. Red Hill Road to SR-299 would provide an evacuation route for the south bank of the river, although no activities are proposed on that side.

WILDLAND FIRE

Steep topography and a mosaic of mixed-conifer, hardwood, and chaparral woodlands coupled with typically hot, dry summers create extreme fire danger throughout most of Trinity County. Human-caused fires, particularly along roadways and other developed areas, are relatively common, although the county is also frequently subject to lightning-caused fires. Wildland fire, regardless of the cause, can be detrimental to watershed function, killing vegetation, burning the organic matter in litter and soil, and forming impervious soil layers, factors that contribute directly to accelerated runoff and erosion from the watershed during and immediately after a storm event.

Trinity County fire protection needs are met by 16 volunteer fire departments dispersed throughout the county, Cal Fire, and the USFS. Cal Fire is responsible for wildland fire protection on all private lands in Trinity County, and the USFS is responsible for wildland fire protection on all federal National Forest lands. However, Cal Fire also contracts with the BLM to provide wildland fire protection on its public lands. The Junction City Volunteer Fire Department (VFD) provides services within their general plan area and is responsible for structural fire protection and rescue services in Trinity County throughout the year.

FLOODING AND SEISMIC EVENTS

A review of the FEMA FIRMs indicate that the site is within an area for which the base flood elevations (BFE) have been determined and the site is in a designated floodway. Areas designated by FEMA as being within "Zone X", are subject to a 100-year flood with average depths of less than 1 foot or with drainage areas of less than 1 square mile. Trinity River flows through these sites are moderated by the TRD below Lewiston Dam.

Infrequently, seismic events occur in the region generally in the form of low to moderate levels of ground shaking associated with nearby or distant earthquakes. The potential for landslides triggered by seismic events is not significant within the corridor of the mainstem Trinity River, due

to the low level of historical occurrence of seismic activity in the region. However, the steep topography and shallow, erosive soils found in much of the region increase the potential for landslides and rockfalls triggered by seismic events, precipitation, or other types of disturbances. Seismic activity known to occur in the project region is discussed in the Trinity River Master EIR (Sections 4.3 and 4.13), including a detailed discussion of geologic hazards that could be associated with rehabilitation sites.

3.13.2 Environmental Consequences/Impacts and Mitigation Measures

3.13.2.1 Methodology

Hazards and hazardous materials associated with the rehabilitation site were assessed in the field by TRRP staff. In addition, Trinity County Planning Department and Environmental Health Department staff were consulted regarding the potential for hazardous substances to occur in the general vicinity of the project boundaries.

3.13.2.2 Significance Criteria

An impact related to hazards and hazardous materials would be significant if the project would:

- Involve the use, production, or disposal of materials that pose a hazard to people or to animal or plant populations in the area affected;
- Create a substantial potential public health or safety hazard due to risk of upset (accidents);
- Create a substantial potential public health or safety hazard due to a reasonably foreseeable release of hazardous materials and/or hazardous waste (i.e., from contaminated soil);
- Violate applicable laws intended to protect human health and safety or expose employees to working situations that do not meet health standards;
- Physically interfere with, or impair implementation of, emergency response plans or emergency evacuation plans;
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment);
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to *California Government Code* Section 65962.5 and, as a result, create a significant hazard to the public or the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school; or
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires.

3.13.2.3 Impacts and Mitigation Measures

Table 20 summarizes the potential hazards and hazardous materials impacts that could result from construction of the project.

Table 20. Summary of Hazards and Hazardous Materials Impacts for the No-Project and Proposed Project Alternatives.

No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.13-1. Implementation of the project could increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard.		
No impact	Less than significant	Not applicable ¹
Impact 3.13-2. Construction activities associated with the project may interfere with emergency response and evacuation plans by temporarily slowing traffic flow.		
No impact	Less than significant	Not applicable ¹
Impact 3.13-3. Implementation of the project may contribute to wildland fire potential and catastrophic fire behavior in the project area.		
No impact	Less than significant	Not applicable ¹
Impact 3.13-4. Implementation of the project may contribute to an increased risk of landslides and flooding.		
No impact	Less than significant	Not applicable ¹

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.13-1: Implementation of the project could increase the potential for release of, or exposure to, potentially hazardous materials that could pose a public health or safety hazard.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, construction activities that could potentially release hazardous substances (e.g., oil, gas, diesel, and mercury) into the environment at levels that could pose a health or safety hazard to the public would not occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Activities associated with the Proposed Project would utilize potentially hazardous materials (e.g., oil and fuels) associated with the operation of vehicles and construction equipment during project construction. These materials are similar to those routinely used for other types of construction projects throughout Trinity County. The widespread use and associated transport of these materials along the highways and county roads that traverse Trinity County, combined with the low level of incidents (spills), suggest that impacts related to rehabilitation activities would be similar to that elsewhere in Trinity County. Given the temporary nature of construction and the distance from residences, schools, and frequently used recreation areas, implementation of BMPs would minimize the potential for any project-related hazardous materials becoming a public hazard. This impact would be less than significant; therefore, no mitigation is required.

Impact 3.13.2: Construction activities associated with the project may interfere with emergency response and evacuation plans by temporarily slowing traffic flow.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, construction activities that could interfere with emergency response and evacuation plans would not occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Under the Proposed Project, construction traffic would include the mobilization and demobilization of construction equipment (e.g., scrapers, excavators, and bulldozers) to and from the site over the course of the construction period. Once the equipment is on the site, construction traffic would be limited to daily trips for personnel and routine service and supply vehicles. Construction activities would be managed to ensure that emergency response and evacuation plans are not impeded. The impacts created would be less than significant; therefore, no mitigation is required.

Impact 3.13.3: Implementation of the project may contribute to wildland fire potential and catastrophic fire behavior in the project area.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, implementation of the project would have no impact on wildland fire potential or catastrophic fire behavior because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Under the Proposed Project, the activities described in Chapter 2 would occur within or adjacent to the riparian corridor of the Trinity River. Potential fuels within the boundaries of the site (e.g., grasses and herbaceous weeds) are generally noncontiguous and the river serves as a substantial natural firebreak. The types and amounts of fuels and their continuity may be decreased temporarily by implementation of this alternative, particularly in areas subject to vegetation removal, but any such changes would not be significant with respect to fire potential and behavior. In the long-term, potential fire conditions would be similar to those that currently exist (e.g., potential fuels would be limited to riparian vegetation, sporadic grasses, and herbaceous weeds). The Proposed Project would have a less than significant impact on wildland fire potential and behavior; therefore, no mitigation is required.

Impact 3.13.4: Implementation of the project may contribute to an increased risk of landslide or flooding.

NO-PROJECT ALTERNATIVE

The No-Project alternative would have no impact on the potential for landslides or flooding because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Under the Proposed Project, most of the activities described in Chapter 2 would take place in the river channel or floodplain, both of which have relatively flat topography. Furthermore, the alternative does not involve alteration of toe-slopes adjacent to any geologically unstable areas (e.g., landslides). Implementation of the Proposed Project would result in either no change to the base flood elevation (BFE) or a reduction of the BFE, since stockpiled excavated material would be stored in the adjacent uplands. The potential for flooding would not be increased under the Proposed Project. These impacts would be less than significant; therefore, no mitigation is required.

3.14 Noise

This section evaluates the potential noise impacts associated with implementation of proposed activities at the Wheel Gulch rehabilitation site. The evaluation is based on a review of local land use plans and policies pertaining to noise and field reconnaissance used to identify potential

sensitive receptors within and adjacent to the boundaries of these sites. A detailed discussion of methodology used to quantify noise is provided in the Trinity River Master EIR (Section 4.14).

3.14.1 Affected Environment/Environmental Setting

Noise is generally defined as excessive and unwanted sound emanating from noise-producing objects. Total environmental noise exerts a sound pressure level that is generally measured with an A-weighted decibel scale (dBA), which approximates the range of sound audible to the human ear (where 10dBA is at the low threshold of hearing and 120-140dBA is the threshold of pain). Human responses to noise are subjective and can vary. The subjective effects of noise are difficult to measure as are the corresponding reactions of annoyance and dissatisfaction. Individual tolerance thresholds vary widely based on an individual's past experiences with noise. Intensity, duration, frequency, time pattern of noise, and existing background noises are some factors that can influence individual responses to noise. Table 4.14-1 of the Trinity River Master EIR lists examples of dBA levels for a range of noises and Table 4.14-2 lists the U.S. General Services Administration maximum noise levels allowed for government contract construction activities. Typical construction noise levels that could occur at the rehabilitation site as a result of project activities are shown in Table 21. The noise levels shown in this table assume the operation of various types of construction equipment, as shown in Table 22.

Table 21. Typical Construction Noise Levels.	
CONSTRUCTION STAGE	NOISE LEVEL (DBA, L_{Eq})¹
Ground clearing	84
Excavation	89
Hauling	88
Revegetation	65
¹ Average noise levels 50 feet from the noisiest source and 200 feet from the rest of the equipment associated with a given construction stage. Noise levels correspond to public works projects (50 dBA ambient environments) (Bolt et al. 1971).	

Table 22. Construction Equipment Noise.	
TYPE OF EQUIPMENT	MAXIMUM LEVEL (DBA AT 50 FEET)
Truck	75
Scrapers	80
Bulldozers	75
Backhoe	75
Pneumatic tools	80

Source: Sincero and Sincero 1996

Noise is not considered a problem in Trinity County. A community noise survey was conducted in Trinity County in 2002 (Brown-Buntin 2002) as part of an update that was being developed for the noise element of the County's General Plan. The community noise survey results indicate that

typical noise levels in noise-sensitive areas range from approximately 44 to 52 dB Ldn⁸. These are low noise levels and are representative of small communities and rural areas. Maximum noise levels observed during the survey were generally caused by local automobile traffic or heavy trucks. Other sources of maximum noise levels included occasional aircraft and construction activities. Background noise levels in the absence of these maximum-noise generating sources are largely attributable to distant traffic, water, wind, livestock, birds, and insects.

Noise-sensitive receptors that have been identified in the general vicinity of the rehabilitation site boundaries include private residential areas; persons, primarily recreationists (e.g., hikers, picnickers, anglers, and rafters); and wildlife that use the Trinity River corridor. Noise tolerance levels for these groups are subjective, varying widely between individuals.

The Wheel Gulch rehabilitation site is located near one of the area's larger roads SR-299 where traffic would be heard passing by. Even though it is adjacent to SR-299 which is a more heavily traveled road, traffic-generated noise is generally infrequent and buffered by vegetation and topography. Traffic on the opposite side of the river would be via private driveways or collector roads for residential purposes where traffic noise is at a minimal level.

The homes on the south bank of the rehabilitation site represent a sensitive noise receptor in close proximity to the site boundary. Residential areas are subjected to varying degrees of ambient noise levels from the river (including recreationists) and intermittent traffic using county arterial and secondary roads in the project vicinity. Because these homes sit upslope of the floodplain, noise from the river can be readily apparent. Existing vegetative would provide a buffer for some of the noise that would be generated in the site's river-side project activity areas.

To varying degrees, construction vehicles entering and leaving the site would temporarily increase traffic levels and, thus, ambient noise levels along SR-299. Homes on the left bank may experience some increased ambient noise levels during construction, but in general, noise levels would be buffered somewhat by distance and vegetation.

3.14.2 Environmental Consequences/Impacts and Mitigation Measures

3.14.2.1 Methodology

Since the Proposed Project would not result in a noticeable increase in traffic volume, construction-related noise is the focus of this impact analysis. Construction noise impacts are based on an assumed mixture of construction equipment and related noise levels. Assumptions related to construction equipment and industry noise averages were used to evaluate construction-related noise impacts, including noise levels at the nearest sensitive receptors.

3.14.2.2 Significance Criteria

Based on Appendix G of the CEQA Guidelines (Association of Environmental Professionals 2008) the Proposed Project would have a significant direct noise impact if they would result in:

- Exposure of persons to, or generation of, excessive ground-borne vibration or ground-borne noise levels;

⁸dB L_{dn} = The average equivalent sound level during a 24-hour day, obtained after addition of 10 A-weighted decibels to sound levels in the night after 10:00 p.m. and before 7:00 a.m. A-weighted decibels, abbreviated dBA, or dB(a), are an expression of the relative loudness of sounds in air as perceived by the human ear.

- A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project;
- A substantial temporary or periodic increase in ambient noise levels in the project vicinity above existing levels; or
- Exposure of persons to, or generation of, noise levels in excess of standards established in the Trinity County General Plan noise element, or applicable standards of other agencies.

3.14.2.3 Impacts and Mitigation Measures

Table 23 summarizes the potential noise impacts resulting from implementation of the No-Project alternative and Proposed Project.

Table 23. Summary of Potential Noise Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.14-1. Construction activities associated with the project would result in noise impacts to nearby sensitive receptors.		
No impact	Significant	Less than significant

Impact 3.14-1: Construction activities associated with the project would result in noise impacts to nearby sensitive receptors.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no change in ambient noise levels would occur because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

During the construction phase of the project, noise from construction activities would temporarily dominate the noise environment in the immediate area. Construction activities would generate maximum noise levels ranging from 65 to 84 dBA at a distance of 50 feet, although intervening terrain and vegetation could reduce these noise levels. Construction noise would be temporary and is expected to occur primarily between the months of July and December. There would be no permanent noise impacts resulting from implementation of the Proposed Project.

Residences along the left side of the river would be subjected to varying degrees of construction noise. It is not anticipated that ground vibration created by project activities would be detectable at any sensitive receptor location and would not result in any structural damage. Recreational users in the general vicinity of the site could encounter increased ambient noise levels during construction activities. While such an increase in noise would be significant, its impact would be temporary and localized.

MITIGATION MEASURES

Construction activities associated with the project would result in noise impacts to nearby sensitive receptors. Therefore, mitigation measures 4.14-1a, 4.14-1b, and 4.14-1c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

3.15 Public Services and Utilities/Energy

This section addresses the public services and utilities associated with the Wheel Gulch rehabilitation site and evaluates impacts on these resources from implementation of the Proposed Project. These resources are described in the Trinity River Master EIR, Section 4.15.

3.15.1 Affected Environment/Environmental Setting

WATER SUPPLY AND DISTRIBUTION

No community water systems exist in Junction City; mutual and private water systems serve the Junction City community. The majority of the residential, commercial, and recreational developments within or adjacent to the rehabilitation site are served by private water systems that derive water from individual wells, springs, and river-intake systems. Surface water sources are more frequently used for domestic purposes along the river corridor than groundwater sources and often require varying levels of treatment prior to use.

SURFACE WATER

The Trinity River is the primary surface water body at the rehabilitation site. Surface water is used primarily for domestic purposes, including gardens, livestock, and fire protection. The TRRP has been working with landowners in the general vicinity of the rehabilitation sites to relocate surface water intake systems affected by post-ROD flows.

GROUNDWATER

Groundwater wells provide water for domestic and commercial purposes adjacent to the project area. Due to the location and nature of the terrain, groundwater levels respond generally to river stage. Geologic investigations conducted for the project suggest that groundwater levels fluctuate seasonally with river flows. Some domestic water sources collect groundwater from deep wells. All project activities have been designed to ensure that known groundwater wells are avoided.

SOLID WASTE COLLECTION AND DISPOSAL

Trinity County operates nine solid waste transfer stations throughout the county, where waste is collected for shipment by truck to the Anderson Landfill in Shasta County. Solid waste collected from the rehabilitation site would be transported by truck either to the Weaverville transfer station or to the landfill located in Anderson.

FIRE PROTECTION AND EMERGENCY SERVICES

Cal Fire, BLM, and USFS provide fire protection services throughout Trinity County. Cal Fire generally provides fire protection services between May and late October. During the winter, Cal Fire responds from Weaverville with one engine, if personnel are present. During the summer, Cal Fire is equipped to provide three engines with 2,250 gallons of water and 12 to 13 firefighters. Minimum response time is 15 to 20 minutes on average. Half of these responses are typically for structure or flue fires and half are for wildland fires. The Junction City VFD provides fire protection services for the area surrounding the Wheel Gulch rehabilitation site.

SCHOOLS

The Junction City Elementary consists of grades kindergarten through eight. There is no bus service for residents in this community; however, bus service is provided throughout the community for students attending Trinity High School in Weaverville.

3.15.2 Environmental Consequences/Impacts and Mitigation Measures

3.15.2.1 Methodology

The analysis addresses potential impacts from implementation of activities at the rehabilitation site on a number of public services and facilities that are described in detail in the Trinity River Master EIR. The analysis qualitatively addresses potential impacts on energy resources resulting from substantial or wasteful energy use during project construction. The analysis is based on a review of planning documents applicable to the site, communications with various agencies, and field reconnaissance.

3.15.2.2 Significance Criteria

A project would normally have a significant impact on public services or utilities under CEQA if it would:

- Not comply with published national, state, or local statutes, regulations, or standards relating to solid waste;
- Interfere with emergency services;
- Degrade the level of service of a public service or utility;
- Require relocating infrastructure;
- Result in substantial adverse physical impacts associated with the provision of, or need for, new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios; response times; or other performance objectives for fire protection, police protection, schools, parks, or other public services;
- Require substantial improvements to the infrastructure or level of staffing of a public service or utility to maintain its existing level of service;
- Require or result in the construction of new water treatment, wastewater treatment, or storm water drainage facilities, or the expansion of such existing facilities, the construction of which could cause significant environmental effects;
- Be served by a landfill without sufficient permitted capacity to accommodate the project's solid waste disposal needs;
- Disrupt utilities service to create a public health hazard or extended service disruption; or
- Encourage activities that result in the use of large amounts of fuel or energy, or would use fuel or energy in a wasteful manner.

3.15.2.3 Impacts and Mitigation Measures

Table 24 summarizes the potential impacts on public services and utilities that could result from implementation of the Proposed Project.

Table 24. Summary of Public Services and Utilities Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.15-1. Implementation of the project could disrupt existing electrical and phone service during construction activities.		
No impact	Less than significant	Not applicable ¹
Impact 3.15-2. Construction of the project could result in the generation of increased solid waste.		
No impact	Less than significant	Not applicable ¹
Impact 3.15-3. Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.		
No impact	Significant	Less than significant
Impact 3.15-4. Construction of the project could result in a substantial use of nonrenewable energy resources.		
No impact	Less than significant	Not applicable ¹

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.15-1: Implementation of the project could disrupt existing electrical and phone service during construction activities.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no construction-related disruption to existing electrical or telephone service would occur because the project would not be implemented. Therefore, there would be no impact.

PROPOSED PROJECT

Under the Proposed Project, no activities would occur to disrupt electrical or telephone service within or adjacent to the site. Utility poles and/or underground lines located within the boundaries of the site have been identified by the TRRP, and activities described in Chapter 2 have been designed to avoid impacts to these facilities. A number of electrical and phone lines cross access roads to the site, typically in a manner that provides adequate vehicular clearance for phone lines and utility lines. These clearances would be adequate to allow access by construction equipment. Potential impacts on electrical and phone utilities and services in the project area as a result of the Proposed Project would be less than significant; therefore, no mitigation is required.

Impact 3.15-2: Construction of the project could result in the generation of increased solid waste.

NO-PROJECT ALTERNATIVE

Increased quantities of solid waste would not be generated under the No-Project alternative because there would be no construction activities. Therefore, there would be no impact.

PROPOSED PROJECT

Under the Proposed Project, construction would result in the generation of solid waste associated with the removal of substantial amounts of vegetation and other construction-related waste (e.g., garbage, containers, and oil). Vegetative materials (e.g., stumps, roots, and branches) would be disposed of within the site. Disposal methods for vegetative materials could include chipping to provide mulch, burial, piling to provide wildlife habitat on site, burning, or integration into the activity areas to provide structural habitat for juvenile fish. Solid waste generated by construction activities would either be disposed of at a local transfer station (Weaverville) or transported by

truck to the Anderson Landfill in Shasta County. The Anderson Landfill currently has sufficient capacity and the necessary permits to accommodate non-hazardous construction waste. The contractor would be responsible for ensuring appropriate disposal of any hazardous waste, as approved by Reclamation. Disposal of potentially hazardous waste is evaluated in Section 3.12, Hazards and Hazardous Materials.

Temporary access routes built for project implementation would be closed and/or decommissioned to ensure that the number of public access points on public lands would not increase, which could require the provision of public services (e.g., solid waste disposal) at locations that are inconsistent with agency management plans, guidelines, and policies. Therefore, this impact would be less than significant.

Impact 3.15-3: Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities.

NO-PROJECT ALTERNATIVE

Since there would be no construction activities associated with implementation of the No-Project alternative, emergency services, school bus routes, and student travel routes would not be disrupted. Therefore, there would be no impact.

PROPOSED PROJECT

Construction activities at the site would be confined within the project boundaries described in Chapter 2. Construction personnel and service vehicles would use designated routes to and from the site. Traffic control associated with site activities would be minimal and is not expected to cause more than minimal disruptions to public services. Access for mobilization and demobilization of heavy equipment, however, may require a higher level of traffic control for local roadways and may disrupt traffic flow and circulation before, during, and after construction. Therefore, effects on emergency services, school bus routes, and student travel routes resulting from heavy equipment would be significant.

No road/bridge closures are planned for project implementation; however, in the event that it becomes necessary to close temporarily a road or bridge as a result of project activities, the road/bridge closures would occur during non-peak hours to avoid traffic circulation impacts associated with emergency services and school bus services. A closure, even during non-peak hours (i.e., 11:00 p.m. to 6:00 a.m.) could have the potential to increase significantly the response time for law enforcement, fire protection, and other emergency services. In the event that road closures would be required during the school year (mid-August through mid-June), these closures could delay school bus services. While this impact would be temporary, it could interfere with student access to bus service and, thus, school attendance. Because of the potential for temporary traffic controls on local roadways, increased response time for emergency services, and interference with student travel, the impact would be significant.

MITIGATION MEASURES

Implementation of the project could result in disruption to emergency services, school bus routes, or student travel routes during construction activities. Therefore, mitigation measures 4.15-3a, 4.15-3b, and 4.15-3c described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measures would reduce the impacts to less than significant.

Impact 3.15-4: Construction of the project could result in a substantial use of nonrenewable energy resources.

NO-PROJECT ALTERNATIVE

No use of nonrenewable energy resources would occur under the No-Project alternative because construction activities would not occur. Therefore, there would be no impact.

PROPOSED PROJECT

Energy expenditures associated with construction at the site would include both direct and indirect uses of energy. Combustion of the refined petroleum products needed to operate construction equipment would be part of the direct energy use. Indirect energy use typically represents about three-quarters of total construction energy usage, with direct energy use constituting the remaining quarter. Though construction energy would be consumed only during the construction phase, it would represent an irreversible consumption of finite natural energy resources.

Construction would directly consume fuel and electricity. Construction would also indirectly consume fuel and electricity because of the energy used to provide the materials necessary for construction. Fuel would be consumed by both construction equipment and construction-worker vehicle trips. Minor electrical use might be required for some construction equipment, such as welding machines, power tools, and pumps.

Construction energy consumption would be a short-term impact and would not be an ongoing drain on finite natural resources. Construction would consume energy primarily in the form of fuel from local commercial sources and would not have a significant effect on local or regional energy sources. Therefore, this impact would be less than significant.

3.16 Transportation/Traffic Circulation

This section describes the existing transportation and traffic conditions in proximity to the Wheel Gulch rehabilitation site and evaluates the potential impacts to transportation resources and traffic circulation from implementation of the Proposed Project.

3.16.1 Affected Environment/Environmental Setting

Regional and local roadways and circulation in the vicinity of the rehabilitation site are described in Section 4.16 of the Trinity River Master EIR. Table 25 identifies and characterizes the access roads for the Wheel Gulch rehabilitation site. Based on reconnaissance information provided by TRRP staff and members of the design team, the roads identified in the table are maintained to varying degrees by the responsible party. No improvements to these roads are anticipated from project activities.

Table 25. Roadway Characteristics for Potential Access Roads Serving the Wheel Gulch Rehabilitation Site.				
Road Name	Ownership	Surface Type	Roadway Class	Traffic Counts (ADT)
Red Hill Road	County	Paved	Minor Collector	822 at Dutch Creek
SR-299	State	Paved	Highway / Scenic Byway	2,950 east of Junction City 1,900 west of Junction City

Sources: Caltrans Information: <http://www.dot.ca.gov/hq/traffops/saferesr/trafddata/2007>; Smith, pers. comm. 2008

The Junction City/Helena community is a collection of residential and commercial areas connected by SR-299. Sky Ranch Road, Dutch Creek Road, Red Hill Road, and Evans Bar Road are all located in the vicinity of the site. These roads are part of Trinity County's road system and provide access to residential areas and federal and private timberlands via SR-299. There are a number of private roads that serve residences and provide access for forest management activities. Public access is often restricted by private land owners. In addition to using existing roads to access the rehabilitation site, roads within the boundaries of this site would be used to support various activities. New roads would be required to provide short-term and long-term access for construction and monitoring activities.

SR-299 is a designated truck route between the Sacramento Valley and the coastal communities of northern California. It is the main access corridor to Trinity County and provides primary access to the Trinity River, including the rehabilitation site.

Bicycle, pedestrian, and equestrian circulation is limited in the communities and residential neighborhoods that have developed along the Trinity River below Lewiston Dam. The Junction City Community Plan contains a goal to increase bicycle, pedestrian, and equestrian travel and safety by developing bicycle routes, trails, and pedestrian walkways. Red Hill Road runs parallel to the Trinity River along the south bank downstream of Canyon Creek. This road was widened by Trinity County to include a bike lane, primarily to provide alternative transportation between local residences and Junction City Elementary School. Although bike lanes are not available on other roads in the general vicinity of Junction City, bicyclists, pedestrians, and equestrians use these roads for access, exercise, and recreational pursuits.

3.16.2 Environmental Consequences/Impacts and Mitigation Measures

3.16.2.1 Methodology

A qualitative assessment of traffic impacts was performed, based on the construction procedures and equipment that would be used, local transportation policies, site review of existing conditions, and traffic levels on key roadways.

3.16.2.2 Significance Criteria

Significance criteria were developed based on Appendix G of the CEQA Guidelines, as well as project-specific issues identified during the scoping process (e.g., access during construction). For the project, significant construction-related impacts would result if the project would:

- Cause an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections);
- Exceed, either individually or cumulatively, a level of service standard established by the county for designated roads or highways;
- Affect the form or function of SR-299, specifically bridges extending over the trinity river and its tributaries;
- Affect the form or function of bridges under the jurisdiction of trinity county or private parties;
- Disrupt existing traffic operations, including vehicular and bicycle traffic;
- Significantly degrade the existing conditions of local private roads;

- Obstruct access to adjacent land uses, including emergency access;
- Affect the operation of the local transit system;
- Conflict with adopted policies, plans, or projects supporting alternative transportation;
- Pose a safety hazard to motorists, bicyclists, equestrians or pedestrians;
- Cause substantial damage to or wear of public and private roadways; or
- Reduce available parking capacity.

3.16.2.3 Impacts and Mitigation Measures

Table 26 summarizes the potential transportation and traffic impacts that would result from implementation of the project.

Table 26. Summary of Potential Transportation Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
3.16-1. Construction activities would reduce/close existing traffic lanes.		
No impact	Less than significant	Not applicable ¹
3.16-2. Construction activities would generate short-term increases in vehicle trips.		
No impact	Significant	Less than significant
3.16-3. Implementation of the project would obstruct access to adjacent land uses.		
No impact	Less than significant	Not applicable ¹
3.16-4. Construction activities would increase wear and tear on local roadways.		
No impact	Significant	Less than significant
3.16-5. Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.		
No impact	Significant	Less than significant
3.16-6. Construction activities could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties.		
No impact	Less than significant	Not applicable ¹

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.16-1: Construction activities would reduce/close existing traffic lanes.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no construction-related reduction or closure of traffic lanes. Therefore, there would be no impact.

PROPOSED PROJECT

Construction activities associated with the Proposed Project would be managed to ensure that SR-299, the road serving as access for the site, would remain open to through-traffic. Temporary traffic control may be necessary during the mobilization and demobilization of heavy equipment; however, no road closures are planned. Passage for emergency vehicles would not be restricted. The adequate passage of traffic within and through the construction area in the event of an emergency evacuation is discussed in Section 3.13, Hazards and Hazardous Materials. Because any traffic control requirements associated with project access roads would be temporary, this impact would be less than significant.

Impact 3.16-2: Construction activities would generate short-term increases in vehicle trips.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, short-term increases in vehicle trips would not occur because there would be no construction activities. Therefore, there would be no impact.

PROPOSED PROJECT

Construction activities associated with rehabilitation activities would require truck and worker vehicle trips on SR-299 leading to and from the rehabilitation sites; thus, vehicle trips would increase on this road. Construction equipment (e.g., large trucks, excavators, and back-hoes) would be mobilized to the site prior to rehabilitation activities and would be removed upon completion of these activities. During the construction period, when the greatest number of workers and trucks would be required, up to 20 construction workers and their vehicles would need access to the site daily. These vehicle trips would be added to area roads on a recurring basis for the duration of rehabilitation activities at the site.

Throughout construction, Reclamation would limit the amount of daily construction equipment traffic by staging the construction equipment and vehicles in the project boundary for the duration of work at each site. Post-construction activities (i.e., revegetation, maintenance, and monitoring) would require intermittent access for 3 to 5 years. Existing traffic volumes along SR-299 are moderate, and the potential increase in traffic generated from construction would be localized and minimal.

MITIGATION MEASURES

Construction activities would generate short-term increases in vehicle trips. Therefore, mitigation measure 4.16-2a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.16-3: Implementation of the project would obstruct access to adjacent land uses.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, access to adjacent land uses would not be affected because no construction activities would occur. Therefore, there would be no impact.

PROPOSED PROJECT

As described in Section 3.1, land uses in and adjacent to the site consist mainly of public and private forestry and other resource lands and private residential areas. Land uses in the Junction City Community Plan area that are near the site include residential, logging and other resource uses, and recreation. Access to adjacent public and private lands could be restricted for short periods of time using traffic control measures. Short-term recreational access to the Trinity River could be restricted, to varying degrees, during construction activities. However, several public access points would be available around this stretch of river during the project implementation period, both upstream and downstream. Impacts related to recreational access and other recreational resources are discussed under Section 3.7, Recreation. Short-term access limitations coupled with the construction criteria described in Appendix A (Traffic Control/Detour) would result in an impact that is less than significant for the Wheel Gulch rehabilitation site.

Impact 3.16-4: Construction activities would increase wear and tear on local roadways.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, there would be no wear and tear on local roadways. Therefore, there would be no impact.

PROPOSED PROJECT

SR-299 is a designated truck route that was built to withstand occasional use by heavy equipment. Other local roads over which project-related trucks and heavy equipment must pass may not be constructed or maintained to support substantial volumes of truck traffic. Numerous local roadways would provide access for construction-related activities, including roads under the jurisdiction of federal, state, and local agencies. Use of these roads by project-related trucks and heavy equipment would increase wear and tear on the local roadways and could result in adverse impacts on the road conditions. The degree of impact would depend on roadway design and existing condition prior to the onset of TRRP activities. Because SR-299 was designed to accommodate a mix of vehicle types, including heavy trucks, the project is not expected to add significantly to roadway wear-and-tear on this highway.

While construction equipment would generally be staged on-site during construction, additional truck travel on local roads would be required when excavated material is used to replenish river gravel supplies. Project planning to use on-site coarse sediment would minimize heavy equipment use on local roads needed for access to the site. Additionally, trucks carrying heavy equipment would operate within the legal weight limits as determined by the state. The number and types of activities could require some level of road reconstruction at select sites before or after the Proposed Project. The level of construction traffic could also require additional maintenance for some road segments in conjunction with various activities. Although standard construction and transportation practices would be implemented to reduce the potential adverse impacts on roadway conditions, the potential wear and tear on some roads under the Proposed Project would be a significant impact.

MITIGATION MEASURES

Construction activities would increase wear and tear on local roadways. Therefore, mitigation measure 4.16-4a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.16-5: Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians.

NO-PROJECT ALTERNATIVE

The No-Project alternative would not pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians because there would be no construction activities. Therefore, there would be no impact.

PROPOSED PROJECT

Traffic safety hazards could arise for motorists, bicyclists, pedestrians, and equestrians in the vicinity of the construction access routes for the Wheel Gulch rehabilitation site as a result of the movement of project-related trucks and heavy construction equipment. Truck and equipment access to the Trinity River during construction activities would be limited to identified routes to

minimize public exposure to construction traffic. Trucks entering and exiting access roads off SR-299 may pose a particular hazard to motorists, cyclists, and equestrians using the roadway. The safety hazard would be limited to brief and intermittent time periods; nevertheless, it would be significant.

MITIGATION MEASURES

Construction activities could pose a safety hazard to motorists, bicyclists, pedestrians, and equestrians. Therefore, mitigation measure 4.16-5a described in Appendix B will be implemented to reduce the potential for impacts associated with the Proposed Project. Implementation of the specified mitigation measure would reduce the impacts to less than significant.

Impact 3.16-6: Construction activities could affect the form or function of bridges under the jurisdiction of Caltrans, Trinity County, or private parties.

NO-PROJECT ALTERNATIVE

The No-Project alternative would not affect bridges under the jurisdiction of Caltrans, Trinity County, or private parties because there would be no construction activities. Therefore, there would be no impact.

PROPOSED PROJECT

A number of bridges over the Trinity River and/or its tributaries could be used to access the site, depending on where the equipment is coming from. The hydraulic model (HEC-RAS) described in the Trinity River Master EIR, Section 4.4, Water Resources, has been used to integrate the hydraulic controls established by these constructed features. Modification of the form or function of these structures would not be affected by rehabilitation activities in close proximity to these sites. Therefore, this impact would be less than significant.

3.17 Tribal Trust

The United States has a trust responsibility to protect and maintain rights reserved by, or granted to, federally recognized Indian tribes and individual Indians by treaties, statutes, and executive orders. The Secretary of the Interior is the trustee for the United States on behalf of Indian tribes and individuals. The trust responsibility requires that all federal agencies, including Reclamation, take all actions reasonably necessary to protect and maintain Indian trust assets.

Indian trust assets are legal interests in property held in trust by the federal government for federally recognized Indian tribes or individual Indians. "Assets" are anything owned that has monetary value. "Legal interest" means that a property interest exists for which there is a legal remedy, such as compensation or injunction, if there is improper interference. Indian trust assets can be real property, physical assets, or intangible property rights, such as a lease or a right of use. While most Indian trust assets are located on-reservation, they can also be located off-reservation. Examples of Indian trust assets include, but are not necessarily limited to, land, natural resources, native plants and wildlife, cultural resources, minerals, hunting and fishing rights, water rights, and instream flow. Tribal trust resources are discussed in Section 7.17 of the Trinity River Master EIR.

3.17.1 Affected Environment/Environmental Setting

The need to restore and maintain the natural production of anadromous fish in the mainstem Trinity River is derived in part from the federal government's trust responsibility to protect the fishery resources of the region's Indian tribes. The Trinity River Basin Fish and Wildlife Restoration Act of 1984 (Public Law 98-541) expressly acknowledges tribal interests in the basin's fishery resources by declaring that the measure of successful restoration of the Trinity River fishery includes the "ability of dependent tribal...fisheries" to participate fully, through enhanced in-river "harvest opportunities, in the benefits of restoration." In addition, the 1992 CVPIA specifically recognizes the federal trust responsibility in regard to the Trinity River fishery. The project could potentially affect anadromous fish, non-anadromous fish, water, wildlife, vegetation, and overall riverine health; these impacts in turn could affect the sociocultures and economics of tribes.

This section focuses principally on the interests of the HVT and YT because, of the Indian tribes of the Klamath/Trinity Region, their interests could be the most directly affected by the project. It should be understood, however, that potential project impacts are pertinent to the Karuk and Klamath people as well, since they share a common regional heritage.

3.17.1.1 Regional Setting

In 1855, President Pierce established the Klamath River Reservation. The reservation was designated as a strip of territory commencing at the Pacific Ocean and extending 1 mile in width on each side of the Klamath River for a distance of approximately 20 miles. Although the federal government's intent was to eventually move all the region's Indians onto the Klamath River Reservation, only some Yurok and Tolowa were moved. In 1864, the DOI issued a proclamation and instructions that established the Hoopa Valley Reservation on the Trinity River pursuant to legislation enacted by Congress that same year. The reservation is 12 miles square and bisected by 15 miles of the river (it has often been called the Square or the 12-mile Square). In 1876, President Grant issued an Executive Order formally establishing the boundaries of the Hoopa Valley Reservation.

Efforts soon began to provide a single contiguous homeland for the region's Indian people by connecting the Klamath River Reservation to the Hoopa Valley Reservation. In 1891, President Harrison extended the Hoopa Valley Reservation from the mouth of the Trinity River to the ocean, thereby encompassing and including the Hoopa Valley Reservation, the original Klamath River Reservation, and the intervening connecting strip. In 1988, Congress, under the Hoopa-Yurok Settlement Act, separated the Hoopa Valley Reservation into the present Yurok Reservation (a combination of the original Klamath River Reservation and other lands) and Hoopa Valley Reservation.

3.17.1.2 Indian Federally Reserved Rights

The United States has a trust responsibility to protect tribal trust resources. In general, this tribal trust responsibility requires that the United States protect tribal fishing and water rights, which are held in trust for the benefit of the tribes (U.S. Department of the Interior 1995). This trust responsibility is one held by all federal agencies. For projects under the auspices of the TRRP, Reclamation is obligated to ensure that these projects do not interfere with the tribes' senior water rights. Pursuant to its trust responsibility and consistent with its other legal obligations,

Reclamation must also prevent activities under its control that would adversely affect Tribal fishing rights, even when those activities take place off-reservation.

FISHING RIGHTS

Salmon, steelhead, sturgeon, and lamprey that spawn in the Trinity River pass through the Hoopa Valley and Yurok Reservations and are harvested in tribal fisheries. The fishing traditions of these tribes stem from practices that far pre-date the arrival of non-Indians. Accordingly, when the federal government established what are today the Hoopa Valley and Yurok Indian Reservations on the Trinity and lower Klamath Rivers, it reserved for the benefit of the Indian tribes of those reservations a right to the fish resources in the rivers running through them. The federally reserved fishing rights of the YT and HVT entitle them to take fish for ceremonial, subsistence, and commercial purposes. The federal government, as trustee, has an affirmative obligation to manage federally reserved Indian rights for the benefit of federally recognized Indian tribes. Federally reserved Indian fishing rights are vested property rights held in trust by the United States for the benefit of the Indians.

WATER RIGHTS

In addition to fish, the tribes have reserved rights to water. The concept of reserved rights in general, and Indian reserved water rights specifically, originated just after the start of the 20th century with *Winters v. United States*, 207 U.S. 564 (1908). The ruling in this case, commonly referred to as the Winters Doctrine, states that when the federal government established a reservation, it implicitly reserved a quantity of water necessary to fulfill the purpose of said reservation. The DOI Solicitor's office reaffirmed these rights with respect to Reclamation's activities, stating "Reclamation is obligated to ensure that project operations not interfere with the Tribes' senior water rights."

RIGHTS TO WILDLIFE AND VEGETATION RESOURCES

While the focus of the legal history surrounding Indian rights to resources has concentrated on water and fisheries, other resources, such as wildlife and vegetation, are also extremely important to the tribes, and the tribes have assessed that these resources are no less reserved. In the case of the HVT and YT, the decline in the health of the region's rivers has limited the availability of grasses and other plants important to traditional basketry, art, and medicine. Thus, while anadromous fish are the focus of the TRRP, other trust assets, such as vegetation, are embodied in the federal government's trust responsibility and, accordingly, need to be considered in the decision-making process.

CULTURAL ENVIRONMENT

Native uses of natural resources and the cultural significance of those resources have developed over many centuries, during the time that native people have lived in the heavily forested drainages of the Klamath and Trinity rivers and adjacent streams in northwestern California. Hunting, fishing, and gathering were the foundation of their societies. Tribes in the area included the Chilula, Hoopa Valley, Nongatl, Tsnungwe, and Whilkut, which spoke Athabascan languages; the Chimariko, Karuk, and Shasta, which spoke Hoka languages; the Wintun, which spoke a Penutian language; and the Wiyot and Yurok, which spoke Algonkian languages.

Some of these tribes, such as the Chilula, no longer exist. Others, including the Chimariko and Wintu, have not been officially recognized by the United States as a distinct and sovereign people.

Among the Indian peoples still present in the region, only the Hoopa Valley, Karuk, Klamath, and Yurok tribes have received this recognition.

Strong social, cultural, and economic ties have existed through history among the tribes of the Klamath/Trinity Basin, based in large part on a shared reliance on the region's rivers and associated resources, particularly salmon. This reliance extends well beyond subsistence and commerce to the cultural and social fabric of their societies, as evidenced by their traditional, ceremonial, and spiritual ways of life that focus and center on the rivers and the fish, wildlife, and vegetation they support. For Indians of the Klamath/Trinity Basin, the interaction and identification with the natural environment define their cultures, lifestyles, and religions; therefore, the degradation of the natural environment has had a profoundly devastating impact.

WHEEL GULCH REHABILITATION SITE

Based on consultation between the tribes and Reclamation, the Wheel Gulch rehabilitation site contains Trust assets, including fish, vegetation, and wildlife. Corresponding sections of this document provide discussions of these resources. While no specific use of these sites by the tribes has been identified, the Trinity River provides a valuable corridor that connects these resources to the HVT and YT.

3.17.2 Environmental Consequences/Impacts and Mitigation Measures

The purpose of this section is to evaluate the potential impacts of the alternatives on tribal trust assets and the subsequent effects those impacts may have on the Indian tribes of the Klamath/Trinity Basin.

3.17.2.1 Methodology

While the project is aimed at improving the river's anadromous fisheries, an assessment of how project construction may actually affect the Indian trust assets of the HVT and YT must be performed, as directed in the DOI Departmental Manual (Part 512, Chapter 2), and Reclamation's Indian Trust Asset Policy. Toward this end, the Indian trust asset impact evaluation focuses on the potential effects of the rehabilitation activities described in Chapter 2 on the health of the Trinity River. Because the river's overall health is a primary factor in determining the availability of fish, the potential tribal trust impacts are not evaluated on an asset-by-asset basis.

3.17.2.2 Significance Criteria

Under CEQA, lead agencies are not explicitly required to consider projects' impacts on tribal trust assets as a distinct category of impacts. With its focus on the physical environment, CEQA requires agencies to focus on impacts to environmental resources, some of which, such as fish, wildlife, and water quality, would be indirectly related to tribal trust values. Therefore, the significance criteria applied in this evaluation of potential consequences on tribal trust assets are general and based on the potential for components of the Proposed Project and its alternatives to result in any modification of, or change in, the quantity or quality of tribal trust assets.

Although CEQA does not expressly require the application of specific significance criteria for potential impacts to Indian trust assets, federal lead agencies evaluating proposed actions under NEPA typically include the evaluation of potential impacts to Indian trust assets as a distinct category of impacts. Accordingly, this evaluation assessed the impacts of the proposed activities

described in this document relative to any modification or change in the value, use, quantity, quality, or enjoyment of downstream Indian trust assets.

3.17.2.3 Impacts and Mitigation Measures

Table 27 summarizes potential impacts on Indian trust assets that would result from implementation of the project.

Table 27. Summary of Potential Tribal Trust Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project With Mitigation
Impact 3.17-1. Implementation of the project may reduce the quantity or quality of Tribal trust assets.		
No impact	Less than significant	Not applicable ¹

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.17-1: Implementation of the project may reduce the quantity or quality of Tribal trust assets.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, mechanical channel rehabilitation activities would not be implemented at the Wheel Gulch rehabilitation site; therefore, no direct impact to Tribal trust assets would occur as a result of the project. However, implementation of other activities to improve the fishery and other resources of the mainstem Trinity River could still be undertaken. Thus, under the No-Project alternative, the overall benefits to Tribal trust assets gained through implementation of the overall TRRP would likely be achieved but the benefits associated with river rehabilitation at the Wheel Gulch rehabilitation site would not be realized.

PROPOSED PROJECT

Under the Proposed Project the Trinity River would continue to support tribal trust assets. The short-term impacts described in sections pertaining to geology, fluvial geomorphology, and soils; water quality; fishery resources; and vegetation, wildlife, and wetlands would occur if the project is implemented. These impacts are expected to be short-term and to be outweighed by the overall benefits to Tribal trust assets gained through implementation of the overall TRRP and the Proposed Project at the Wheel Gulch rehabilitation site. Therefore, this impact is less than significant.

3.18 Environmental Justice

Executive Order 12898, “Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations,” dated February 11, 1994, requires federal agencies to identify and address adverse human health or environmental effects of their actions on minorities and low-income populations and communities as well as the equity of the distribution of the benefits and risks of their decisions. Environmental justice addresses the fair treatment of people of all races and incomes with respect to actions affecting the environment. Fair treatment implies that no group of people should bear a disproportionate share of negative impacts from an environmental action.

To comply with the environmental justice policy established by the Secretary of the Interior, all DOI agencies are to identify and evaluate any anticipated effects, direct or indirect, from a project, action, or decision on minority and low-income populations and communities, including the equity

of the distribution of the benefits and risks. Accordingly, this section examines the anticipated impacts of the Proposed Project with respect to potentially affected minority and economically disadvantaged groups. Socioeconomic issues, including population and housing, are evaluated in this document in Section 3.8, Socioeconomics. This section does not function as part of the IS portion of this joint document, because CEQA does not require state or local agencies to address environmental justice concerns in an IS.

3.18.1 Affected Environment/Environmental Setting

The Trinity River is a valuable economic resource for Trinity County. Its popularity as a recreation destination, particularly for fishing, white-water recreation, gold panning, and as an access point to the Salmon-Trinity Alps, directly benefits communities such as Lewiston, Douglas City, and Junction City through increased business patronage. Campgrounds and river access points occur in close proximity to the rehabilitation site. These businesses benefit during peak recreation-use periods (e.g., rafting, kayaking, and fishing). Other economic opportunities such as agriculture are severely limited by the surrounding topography; thus, minimizing the attraction for a transitional labor pool.

The U.S. Census uses a set of income limits that vary by family size and composition to determine who is poor. If a family's total income is less than the income limit, then that family, and every individual in it, is considered poor. Poverty income level thresholds are nationwide standards set by the Census. The formula for the poverty rate is the number of persons below the poverty level divided by the number of persons for whom poverty status is determined. In 2004, 14.2 percent of the population in Trinity County was living in poverty compared to 13.2 percent for the state of California as a whole. The 2004 median household income for Trinity County was \$30,307, which is 39 percent less than the median California income (Center for Economic Development 2007).

Population by race and ethnicity is estimated annually by the California Department of Finance, Demographic Research Unit. According to the data compiled by the Center for Economic Development (2007), the vast majority of the population in Trinity County (approximately 84 percent), as measured in 2006, consists of white non-Hispanic individuals. The largest minority population in the county is the American Indian population. In 1990, American Indians constituted 4.6 percent of the total county population. By 2006, the percentage had increased to 5.4 percent, compared to less than 1 percent for California. In 1990, the Hispanic population was 3.3 percent of the county's total population. By 2006, the percentage had increased to 5.3 percent of the total, compared to 36 percent in California. In 1990, Trinity County's non-Hispanic white population was 91 percent of the county's total population. By 2006, the percentage had decreased to 84 percent (Center for Economic Development 2007). The percentage of black and Asian residents in the county remained small (each less than 1 percent).

Census statistics are not available for Junction City. However, statistics are available for the zip code (96048) that includes Junction City (U.S. Census Bureau 2000). The Junction City community is predominately white (91.7 percent) (U.S. Census Bureau 2000). The proportion of individuals living below the poverty level for this area (12.7 percent) is similar to the balance of the United States (12.4 percent) (U.S. Census Bureau 2000).

3.18.2 Environmental Consequences/Impacts and Mitigation Measures

3.18.2.1 Methodology

The EPA compares three factors—minority representation, low-income representation, and environmental burden—for a community of concern and one or more reference areas—for example, an entire county—to analyze potential environmental justice impacts. A community of concern can be defined in a number of ways, including a municipality, a census block group, a user-defined radius around a source of pollution, or a boundary drawn along physical features such as streets, streams, or railroad tracks. The demographic data for the community of concern can then be analyzed to determine whether there would be a potential environmental justice concern in the area. As part of this analysis, poverty levels and minority population levels were examined for Trinity County as a whole and for the residential area associated with Junction City, although only a limited amount of information was available for the area.

3.18.2.2 Significance Criteria

Because environmental justice is not a CEQA issue, specific significance criteria were not applied in evaluating potential environmental justice consequences. Instead, any modification or change in environmental justice factors that would occur in response to the Proposed Project is evaluated in accordance with NEPA requirements.

3.18.2.3 Impacts and Mitigation Measures

Table 28 summarizes the potential environmental justice impacts that would result from implementation of the project.

Table 28. Summary of Potential Environmental Justice Impacts for the No-Project and Proposed Project Alternatives.		
No-Project Alternative	Proposed Project	Proposed Project with Mitigation
Impact 3.18-1. Implementation of the project could adversely affect a minority or low-income population and/or community.		
No impact	Less than significant	Not applicable ¹

¹Because this potential impact is less than significant, no mitigation is required.

Impact 3.18-1: Implementation of the project could adversely affect a minority or low-income population and/or community.

NO-PROJECT ALTERNATIVE

Under the No-Project alternative, no impact to a minority or low-income population or community would take place because the project would not be constructed. Therefore, there would be no impact.

PROPOSED PROJECT

Although minority and low-income residents live in the vicinity of the project, the impacts would generally be experienced by residents in relationship to their proximity to the rehabilitation sites, regardless of their racial or income characteristics. There is no evidence to suggest that the project would cause a disproportionately high adverse human health or environmental effect on minority and low-income populations compared to other residents of the area. The known health risks to residents that could be associated with the project are evaluated in the sections of this document

related to Water Quality, Air Quality, Hazardous Materials, and Noise. For the most part, these health risks are associated with the construction aspects of the project, in that residents and construction workers could be exposed to hazardous materials that may be associated with the project. Possible health risks also include construction-related accidents. Reclamation would manage the project to minimize these risks, as required by applicable federal and state safety regulations. Therefore, no specific or disproportionate health risks or other impacts to low-income groups would be associated with the project.

Chapter 4

4 CUMULATIVE EFFECTS AND OTHER CEQA AND NEPA CONSIDERATIONS

This EA/IS tiers from the “statutory considerations” discussion in the Trinity River Master EIR (Chapters 5 and 8). These discussions cover certain topics required under CEQA, such as cumulative impacts, the significant environmental effects of the Proposed Project, the significant effects that cannot be avoided if the Proposed Project is implemented, and growth-inducing effects of the project. Additional discussions are also required under NEPA, such as the significant irreversible and irretrievable commitments of resources and the relationship between local short-term uses of the environment and the maintenance of long-term productivity. These considerations are summarized below; see the Trinity River Master EIR for complete discussions of these topics.

4.1 Cumulative Impacts

The regulatory framework for the assessment of cumulative impacts under CEQA is discussed in Chapter 5, Section 5.2.1, of the Trinity River Master EIR, and the regulatory framework for NEPA is discussed in Chapter 8, Section 8.2.1. Under the CEQA Guidelines (Section 15355), the term “cumulative impacts” refers to two or more individual impacts that, when considered together, are considerable or that otherwise compound or increase other environmental effects. Cumulative environmental impacts arise from the incremental impacts of a proposed project when added to other closely related past, present, and reasonably foreseeable future projects.

The CEQ NEPA implementing regulations (40 CFR 1508.7) state that cumulative impacts result from the incremental impact of a proposed action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (federal or non-federal) undertakes the other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time.

4.1.1 Methodology and Analysis

The methodology for the cumulative impact analysis in this document is described in section 5.2.2 of the Trinity River Master EIR. As discussed in that section, the methodology involved the assessment of the potential cumulative effects of the Proposed Project when considered in combination with a list of related projects within a defined geographical area. This assessment of cumulative impacts is considered in the same cumulative context—i.e., using the same list of related projects and programs and the same geographical area.

The issue-specific analysis of cumulative impacts in Chapter 5 of the Trinity River Master EIR identifies the potential cumulative impacts related to the Remaining Phase 1 and Phase 2 sites for a variety of resource areas. For these resource areas, no additional cumulative impacts have been identified that are specific only to the Wheel Gulch rehabilitation site. The previous issue-specific analysis in Chapter 5 sufficiently addresses the cumulative impacts of the Proposed Project, and no clearly discernable differences arise in the consideration of the Wheel Gulch rehabilitation site separately. Table 29 summarizes the cumulative impact findings.

Table 29. Summary of Cumulative Impacts Findings from the Trinity River Master EIR.

Land Use	Implementation of the Proposed Project, in combination with other related projects, would not have a cumulative impact in terms of planning policies, nor would river rehabilitation activities result in cumulative effects in terms of local or federal land use planning policies.
Geology, Fluvial Geomorphology, and Soils	No significant cumulative impacts associated with geologic hazards, geomorphic processes, or erosional processes are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. Appropriate implementation of prescribed mitigation measures would reduce potential impacts to a less-than-significant level.
Water Resources	Implementation of the Proposed Project in combination with other river rehabilitation activities would not have cumulatively considerable impacts on beneficial uses of the river or result in changes in the quantities of water available for any of those uses.
Water Quality	No significant cumulative impacts to water quality are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. Individually, these activities would result in short-term, temporary effects on water quality. Appropriate implementation of prescribed mitigation measures would reduce potential impacts to a less-than-significant level.
Fishery Resources	No significant, adverse, cumulative impacts to fisheries resources are anticipated to occur as a result of the implementation of the Proposed Project. The effect of the Proposed Project, in conjunction with other projects and programs, is expected to be beneficial in terms of the rehabilitation of habitat and fisheries resources. Implementation of the Proposed Project as mitigated would benefit, rather than adversely affect, fishery resources of the Trinity River in the long term.
Vegetation, Wildlife, and Wetlands	No significant cumulative impacts to vegetation, wildlife, and wetlands are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. The project as mitigated would benefit, rather than adversely affect, vegetation, wildlife, and wetlands in the long term, as would most of the other related projects and programs. Implementation of the Proposed Project would contribute to long-term ecological benefits in terms of vegetation, wildlife, and wetlands.
Recreation	No significant cumulative impacts to recreational resources are anticipated to occur as a result of implementation of the Proposed Project in combination with other related projects. Benefits to recreational values may be achieved through the implementation of the TRRP over time.
Socioeconomics, Population, and Housing	No significant cumulative impacts to socioeconomics, population, and housing are anticipated to occur as a result of implementation of the Proposed Project. The related projects and programs described in the cumulative effects analysis in the Trinity River Master EIR are intended to benefit the Trinity River fishery, with moderate projected economic and social benefits to the residents and communities along the Trinity River.
Cultural Resources	No significant cumulative impacts to cultural resources are anticipated to occur as a result of implementation of the Proposed Project. Appropriate implementation of prescribed mitigation measures (e.g., surveys of potential impact areas by a professional archaeologist prior to construction, protection of potentially significant cultural sites, and coordination with local tribes), in coordination with the SHPO, would adequately mitigate for potential impacts, including cumulative impacts.
Air Quality	No significant cumulative impacts to air quality are anticipated to occur as a result of implementation of the Proposed Project. The NCUAQMD

	requirements would be addressed by implementation of prescribed mitigation measures. The Proposed Project, in conjunction with the other projects and programs occurring within the Trinity River basin, would contribute cumulatively to global climate change. Thus, the proposed project would contribute to an adverse cumulative contribution to global climate change. Implementation of mitigation measures would reduce the cumulative contribution to global climate change to a less-than-significant level.
Aesthetics	No significant cumulative impacts to aesthetics are anticipated to occur as a result of implementation of the Proposed Project. Implementation of the Proposed Project would benefit, rather than adversely affect, aesthetics in the long term, as would most of the other related projects described in the cumulative effects analysis in the Trinity River Master EIR.
Hazardous Materials	No significant cumulative impacts related to hazardous materials are anticipated as a result of implementing the Proposed Project in combination with other related projects.
Noise	No significant cumulative impacts related to noise are anticipated through implementation of the Proposed Project in combination with other projects. Reclamation would coordinate the implementation of other restoration projects to ensure that construction noise is minimized through project scheduling.
Public Services and Utilities/Energy	No significant cumulative impacts related to public services and utilities/energy are anticipated as a result of implementation of the Proposed Project in combination with other related projects. The rehabilitation activities are designed in ways that ensure that emergency services would not be disrupted; that public services (e.g., school bus routes) would not be adversely affected; and that waste material generated from project activities would be transported appropriately to authorized locations.
Transportation/ Traffic Circulation	No significant cumulative impacts related to transportation/traffic circulation are anticipated through the implementation of the Proposed Project in combination with other related projects. Traffic increases would be localized and temporary.
Tribal Trust Assets	No significant cumulative impacts to tribal trust assets are anticipated to occur as a result of implementation of the Proposed Project. The related projects and programs described in Chapter 5 of the Trinity River Master EIR, in combination with the Proposed Project, are expected to cumulatively result in beneficial effects to the tribal trust assets, including the overall health of the Trinity River and its fishery resources.
Environmental Justice	No disproportionate environmental effects on minority or low-income populations have been identified for either the Remaining Phase 1 or Phase 2 sites, and no significant cumulative impacts to environmental justice are anticipated to occur as a result of the implementation of the Proposed Project. Implementation of the proposed project, in conjunction with the other related projects and programs described in Chapter 5 of the Trinity River Master EIR, is anticipated to provide a net benefit to the local communities by helping to restore the Trinity River's fishery resources.

4.2 Irreversible and Irretrievable Commitments of Resources

NEPA (Section 102) and the CEQ NEPA implementing regulations (40 CFR 1502.16), require a discussion of “any irreversible and irretrievable commitments of resources which would be involved in a Proposed Action should it be implemented.”

Section 15126.2(c) of the CEQA Guidelines also requires a discussion of the significant irreversible environmental changes that would result from a proposed project should it be implemented. This section of the CEQA Guidelines states:

Uses of nonrenewable resources during the initial and continued phases of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvements which provide access to a previously inaccessible area) generally commit future generations to similar uses. Also, irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

The No-Project alternative would not directly involve the use of resources or cause significant irreversible environmental effects other than those previously described in the Trinity River FEIS/EIR (U.S. Fish and Wildlife Service et al. 2000) and incorporated by reference in other sections of this document.

Implementation of the Proposed Project would not involve the substantial use of nonrenewable resources in such a way that would result in conditions that would be irreversible though removal or nonuse thereafter. Future generations would not be committed to irreversible consequences or uses; the effect on future generations would be beneficial as a result of the enhanced and maintained river system and related fishery resources. No irreversible damage from environmental accidents would be foreseeable in association with the Proposed Project.

Implementation of the Proposed Project would result in the use of fossil fuels, a nonrenewable form of energy. A relatively minor amount of nonrenewable resources would be used in the mechanical rehabilitation of the river channel, transport of gravel, and related construction and management activities at the rehabilitation. The material requirements for this project would be relatively minor compared to the overall demand for such materials, and the use of these materials would not have a significant adverse effect on their continued availability.

4.3 Relationship between Local Short-Term Uses of the Environment and the Maintenance and Enhancement of Long-Term Productivity

Section 102 of the CEQ NEPA Regulations and CFR 1501.16 require that an environmental document include a discussion of “the relationship between local short-term uses of man’s environment and the maintenance and enhancement of long-term productivity.” This discussion was included in Section 8.4 of the Trinity River Master EIR.

The Proposed Project does not involve a trade-off between a “local short-term use” of the environment and the maintenance and enhancement of the environment in the sense contemplated by NEPA. Implementation of the Proposed Project is intentionally aimed at maintaining and enhancing the long-term biological and environmental productivity of the river system. Implementation of the Proposed Project would not sacrifice the long-term productivity of the project area for short-term uses during construction.

The short-term impacts on the environment associated with implementation of the Proposed Action are considered minimal compared to the long-term benefits and productivity that would result from the Proposed Action in conjunction with other objectives of the TRRP. Construction-related impacts and land use conflicts would be short-term, occurring only during the construction phase of the project. While such impacts are considered significant (in a CEQA sense), they would be mitigated to less-than-significant levels.

4.4 Growth-Inducing Impacts

Section 5.3 of the Trinity River Master EIR evaluated the potential for growth that could be induced by implementation of the Proposed Project and assessed the level of significance of any expected growth inducement. Under CEQA, growth itself is not assumed to be particularly beneficial, detrimental, or insignificant to the environment. If a project is determined to be growth inducing, an evaluation is made to determine whether significant impacts on the physical environment would result from that growth.

Implementation of channel rehabilitation activities and sediment management activities at the Wheel Gulch rehabilitation site would not remove any constraints to development, create new or improved infrastructure, or otherwise create conditions that would induce growth. The Proposed Project would improve habitat for anadromous fish and, thus, improve conditions for fishing and recreation; however, the improved fishery resources resulting from implementation of the Proposed Project are not likely to directly or indirectly result in substantial development or population growth. Therefore, implementation of the Proposed Project would not result in a significant growth-inducing impact.

4.5 Environmental Commitments and Mitigation Measures

Reclamation's NEPA implementation guidance recommends that a list of environmental commitments for the preferred alternative be included in an EA. The list should contain all mitigation measures and management actions that are incorporated in the project as part of the proposal. Because this document is a joint NEPA/CEQA document, mitigation measures have been identified for potentially significant impacts in compliance with CEQA requirements. Under CEQA, lead agencies are required to adopt a program for monitoring or reporting on the revisions that they required be made part of the project and other measures required to mitigate or avoid significant environmental effects. The MMRP for implementation of the Proposed Project complies with Reclamation's practice to include a list of environmental commitments in an EA/IS. The MMRP is included as Appendix E of the Trinity River Master EIR. A site specific MMRP for the Wheel Gulch rehabilitation project is included as Appendix B of this document.

4.6 Significant Effects

CEQA establishes a duty for public agencies to avoid or minimize environmental damage where feasible (CEQA Guidelines Section 15021), and determinations of significance play a critical role in the CEQA process (CEQA Guidelines 15064). Section 5.4 of the Trinity River Master EIR addresses several types of potentially significant effects.

Potentially significant effects have been identified in the areas of land use; geology, geomorphology, soils, and minerals; water quality; fishery resources; vegetation, wildlife, and wetlands; recreation; cultural resources; air quality; aesthetics; noise; public services and utilities; and traffic and transportation. These potential effects are discussed in each resource. As part of the environmental impact assessment for each resource area, mitigation measures have been identified that reduce these impacts to less-than-significant levels. The environmental analysis conducted for the Proposed Project did not identify any effects that, after mitigation, remained significant and therefore unavoidable; no significant irreversible effects were identified associated with the Proposed Project.

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Chapter 5

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Appendices

APPENDIX A DESCRIPTION OF COMMON ACTIVITIES AND CONSTRUCTION CRITERIA AND METHODS

Common Activities

VEGETATION REMOVAL

Vegetation removal would involve the following:

- Remove vegetation to provide access to activity areas using a combination of manual labor and heavy equipment (i.e., chainsaw, excavator, and vegetation masticator).
- Remove stumps, roots, and vegetative matter to allow river scour on excavated floodplain surfaces. Some LWD would be retained for use in the floodplain to enhance fish habitat.
- Dispose of removed vegetation by chipping, hauling offsite, burning, burying within spoils areas, or other appropriate methods. Reclamation would continue to work with local agencies to encourage the efficient use of chipping as a priority method of disposing of vegetative waste.
- Protect vegetation designated for preservation within clearing limits. Vegetation outside the clearing limits would be preserved and protected.
- Mechanically remove submerged roots from river fringe areas with ripping bars or excavator buckets. Equipment chassis (i.e., tires, tracks) would remain outside of the wetted portion of the river channel when removing submerged roots.

WATER USE

Water would be used at all sites, in accordance with the following:

- Riparian water rights held by public and private landowners on the Trinity River would be used to obtain Trinity River water to support restoration. Dust abatement water would be obtained from on-site seep wells or the Trinity River. When drafting from the Trinity River, pump intakes would be in conformance with criteria established by NMFS and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 feet per second (fps).
- In the event irrigation is necessary for revegetation efforts, the primary water source would be the Trinity River. Any surface water sources used for irrigation would be developed in order to comply with the water rights of land management agencies and landowners. Pump intakes would be in conformance with criteria established by NMFS and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

MONITORING

The ROD provided a restoration strategy for the TRRP but did not identify methods for assessing the effectiveness of the management actions in achieving TRRP goals or management targets.

Instead, it directed the TRRP to organize assessments around the principles of AEAM and to use this to rigorously assess the river's response to management actions. The Integrated Assessment Plan (IAP) provides the basis for applying the AEAM principles outlined in the ROD.

These principles would be applied to quantitatively determine the overall status and trend of river system attributes relative to TRRP objectives, using appropriate data to describe each attribute, with data collected based upon scientifically defensible monitoring designs. The causal relationship between rehabilitation of the fluvial nature of the river and increasing salmonid production would be the major focal point for monitoring and modeling. The focus of the IAP is to identify key assessments that:

- Evaluate long-term progress toward achieving program goals and objectives; and
- Provide short-term feedback to improve program management actions by testing key hypotheses and reducing management uncertainties.

The IAP provides a general framework for integrating and linking assessments across monitoring domains. Integration of assessments would be essential for evaluating the TRRP's overall restoration strategy, involving coordinated actions to support multiple ecosystem processes and components. This integration allows development of coordinated sampling designs and assessments that serve multiple or complementary objectives, and is intended to improve the understanding of qualitative and quantitative functional relationships associated with the mainstem Trinity River.

The IAP framework focuses on six key elements; each of these would be integrated into the Mitigation Monitoring and Reporting Plan (MMRP) to ensure that authorized activities are consistent with the AEAM. Key elements of the IAP include:

1. Create and maintain spatially complex channel morphology.
2. Increase/improve habitats for freshwater life stages of anadromous fish to the extent necessary to meet or exceed production goals.
3. Restore and maintain natural production of anadromous fish populations.
4. Restore and sustain the natural production of anadromous fish populations downstream of Lewiston Dam to pre-dam levels to facilitate dependent tribal, commercial, and sport fisheries' full participation in the benefits of restoration via enhanced harvest opportunities.
5. Establish and maintain riparian vegetation that supports fish and wildlife.
6. Rehabilitate and protect wildlife habitats and maintain or enhance wildlife populations following implementation.

Additional information on the IAP is available on the TRRP website:

<http://www.trrp.net/science/IAP.htm>

Design Elements

Attachment 1 following the appendices in Volume IV of the Trinity River Master EIR is a glossary of design and construction terms for use by the design team.

HYDRAULICS

The proposed project would occur in areas that FEMA has designated as Special Hazard Zones AE and X, as described in Section 3.3 of this document. In the Zone AE areas, Reclamation has established a design criterion stating that not only would the County's floodplain ordinance be followed, but implementation of the Proposed Project would not increase the flood risk for the

community. This criterion resulted in a stipulation that coarse sediment and excavated material would be strategically placed to ensure that 100-year flood elevations would not increase over current conditions. As previously described, the site boundaries generally conform to the river corridor, bounded by prominent geographic features such as roads and fences.

The design of the activity areas was based on an understanding of the relationships between the flow regime and the hydrologic/hydraulic characteristics of the action. A fundamental constraint was to *do nothing to increase the flood risk in the general vicinity, and to not raise the water surface elevation above the current FEMA estimated 100-year base flood elevation*. Evaluation of the proposed project requires comparing estimated seasonal base flows and estimated return-period flows. USACE's Hydraulic Engineering Center River Analysis System (HEC-RAS) hydraulic model would be used by the design team during final design activities to predict changes in flood elevations at various points along the project reach. Table A-1 lists the components of the flow regime, the seasonal or other periodic return intervals, and the flow rates that would be used during final design to ensure that the action meets the flood constraints described above.

Table A-1. Estimated Mainstem Trinity River Flow Conditions Used for Design		
FLOW DESCRIPTION	FLOW EVENT	FLOW RATE (CFS)
Summer base flow ^a (July 22 to October 15 of each year)	Q _s	450
1.5-year return interval design flow	Q _{1.5}	6,000
Estimated FEMA 100-year flow below Rush Creek	Q ₁₀₀	19,300
Estimated FEMA 100-year flow below Grass Valley Creek	Q ₁₀₀	23,600

^aBase flow defined as cfs from TRD release and accretion flow
Q=return interval

A HEC-RAS model for the Trinity River from Lewiston Dam to the North Fork Trinity River was developed by DWR and provided to the TRRP as part of the administrative record. This model was calibrated to match measured water-surface elevations (WSEs) in the Trinity River within and adjacent to the site boundaries for the design flow. Since WSEs have not been measured (validated) for the 100-year flow, the predicted WSEs are based on the output of the model using carefully selected Manning's "n" values that reflect the overbank conditions at each site. The model incorporates empirical data from surveyed cross-sections, including bathymetric and overbank/floodplain topography in the general vicinity of the rehabilitation sites. To obtain WSEs for design flows, the model was calibrated using surveyed WSEs and known flows (from gage data). The model was determined to be accurate for the level of evaluation and design required.

There are several significant flow conditions that are important to the design of the proposed project. Two of the most important flow conditions are summertime low flows of about 450 cfs, which is the release from Lewiston Dam, and the 1.5-year-event (ordinary high water) flow of 6,000 cfs, as measured below Rush Creek. The design team regards the design flows portrayed in Table A-1 as the "best available information" per FEMA requirements. The FEMA Q100 "near Douglas City" (38,500 cfs) was established in the 1976 USACE report (U.S. Army Corps of Engineers 1976) used by FEMA to develop the current FIRMs for the Trinity River. The 6,000 cfs 1.5-year event is

based on the ROD flow release. This flow information provides the basis for the designs incorporated into the proposed project.

The HEC-RAS hydraulic model was developed and calibrated for the existing conditions to calculate the WSE at various flow releases. The calibration was based on water-surface profiles surveyed at low flow and water profiles and points surveyed at different flows, ranging from 4,500 cfs to 10,000 cfs releases from Lewiston Dam. After the model was properly calibrated, various WSEs were determined for the activity areas and used to develop the design topography. The illustrations at the end of this chapter portray the design topography concepts. The final designs would ensure that constructed surfaces are self-draining in order to minimize potential fish stranding.

ROADWAY APPROACHES

As an alternative to disposing of excavated materials onsite, materials may be hauled to commercially approved off-site locations. This option would reduce the impact of spoiling excavated materials in upland habitats. Hauling a portion of excavated materials generated under the proposed project could require substantial truck traffic to off-site locations. The traffic would be staged over the project duration, generally between August 1 and October 15. Traffic control measures would be applied in accordance with BLM, Trinity County, and Caltrans requirements.

RECREATION FACILITIES

As appropriate, recreation facilities (e.g., parking areas, access trails, picnic areas) affected by project activities would be returned to the same level of service as those offered prior to project implementation. Reclamation, in consultation with the BLM, DWR, and CDFG, could enhance one or more of these facilities consistent with project objectives. Examples of enhancement could be updated signage, surfacing of trails or parking areas with permeable materials, improvements to fishing access locations or establishment of interpretive features intended to increase public awareness of the ongoing efforts to restore the Trinity River.

DRAINAGE

As appropriate, culverts or other drainage structures would be constructed at temporary stream crossings or cross-drainage channels to allow for unimpeded surface drainage.

RIGHTS-OF-WAY/EASEMENTS

Prior to construction, formal realty agreements would be made between Reclamation; land managers for BLM, DWR, and CDFG; and private landowners whose property would be affected. These agreements would clarify the terms and conditions under which Reclamation would work on private property. In addition, these agreements would compensate landowners, based on fair market value of identified construction easements, and would hold property owners harmless during construction activities.

UTILITIES

There are a number of utility features located within and/or adjacent to the site boundaries. Water intakes, power and telephone poles, and water supply lines parallel or cross the Trinity River in a number of locations. These utilities are considered in the project design to ensure that service would not be disrupted.

Construction Criteria and Methods

CONSTRUCTION PROCESS OVERVIEW

- Vegetation removal would occur as necessary and in compliance with all regulatory requirements. An expected August 1 start date for clearing and grubbing of vegetation would allow completion of nesting by avian species. Alternatively, vegetation may be removed prior to the start of the nesting season, which is early March for this area.
- Where available, existing roads (activity M) would be used to access the activity areas. New access roads (activity N) and haul routes would be constructed when necessary and restored to a stable condition in accordance with landowner requirements at the completion of the project.
- Excavation would begin on the floodplain to bring it down to grade.
- When specified, finer grained materials (e.g., sand) excavated from riverine activity areas may be stockpiled for use at upland or other riverine activity areas.
- Any riverine treatment areas (e.g., constructed inundation surfaces) that have been compacted from construction activities would be ripped to a depth of approximately 18 inches. The furrows developed by this ripping would ensure that most storm water runoff is retained and filtered on-site so that there is little or no construction-related turbidity. This action would effectively control the release of storm water runoff and turbidity from the site and eliminate the need for use of post-construction sediment-control measures (e.g., silt fences, berms).
- The timing for work adjacent to the river may be affected by river flows. If for some reason the flow is low when construction starts, but it is anticipated that flows would increase before the floodplain can be excavated, excavation would occur at the lower elevations (adjacent to river) first and at the higher floodplain elevations last.
- In-channel activities would generally take place during low flows (July 15 to September 15 as allowed by the coho salmon in-river work window in NMFS' 2000 Trinity River biological opinion) to create immediate point bars and allow mobilization of in-channel materials at high flows.
- Alcoves and side channels would be constructed from the existing grade down slope. Measures would be taken (e.g., sediment plug, sandbags) to isolate the work area from flowing water. If necessary, pumps would be used to dewater the excavation to inhibit any sediment from entering the river. Typically, reconnecting these features to the river relies on high-flow events. If necessary, the TRRP would remove materials used to isolate these side channels after they have been constructed.
- Final grading would occur as necessary for all activity areas.
- Demobilization of construction equipment and site clean-up would be accomplished consistent with Reclamation requirements.
- Revegetation would take place during wet conditions (fall/winter) and would generally occur in riparian areas to maximize use by fish and wildlife species. Projects would be designed and implemented to achieve no net loss in riparian vegetation (within the project site boundaries) from planting and natural revegetation consistent with the Draft Riparian Revegetation Plan.

IN-RIVER CONSTRUCTION

- Where necessary, heavy equipment would be used to grub tree and shrub roots from the edge of the river. Vegetation would often be maintained along the river's active channel to maintain the currently available low-water fish habitat. During root removal, equipment chassis would generally not enter the low-water river channel.
- In-river excavation would generally begin at the far edge of the activity area and work back toward the riverbank so that heavy equipment is on dry land or in shallow water.
- In-river materials or coffer dams may be used to temporarily redirect flow around work areas and to create platforms from which to work. In addition to providing the means for volitional fish passage (upstream and downstream), at least one navigable (by raft/boat) passage through the activity area would remain open at all times.

TRAFFIC CONTROL/DETOUR

Short-term traffic control is expected and would be in conformance with the following requirements established by the appropriate jurisdictional authority for mobilization and demobilization of heavy equipment or wide-load vehicles:

- Reclamation would coordinate with jurisdictional agencies to identify specific requirements that shall be included for use of existing roadways and haul routes. Requirements may include seasonal or other limitations or restrictions, payment of excess size and weight fees, and posting of bonds conditioned upon repair of damage.
- Temporary construction access may be required; access routes shall be of a width and load-bearing capacity to provide unimpeded traffic for construction purposes.

STAGING AREAS

Staging areas and storage facilities for the Proposed Project are shown on Figure 3. These areas would be used throughout the duration of the project activities. Some short-term staging and equipment storage and parking would be needed in the activity areas as the project is implemented.

AIR POLLUTION AND DUST CONTROL

Efforts would be made to minimize air pollution and reduce greenhouse gas emissions related to construction operations. Reclamation specifications require that the contractor comply with all applicable air pollution control rules, regulations, ordinances, and statutes. In addition, project contractors would be given educational material about fuel efficiency and the benefits of using vehicles powered by alternative energy sources to enhance awareness of global warming issues. Contractors would also be required to provide recycling bins for on-site waste materials.

Contract documents would also specify that the contractor would be responsible for limiting dust by watering construction site areas used by trucks and vehicles. If water is taken from the river, pump intakes would be in conformance with criteria established by NMFS and CDFG to prevent impacts to aquatic organisms. Make-up water pumped from the river would pass through a screen at the inlet with maximum ¼-inch openings and a maximum intake velocity of 0.8 fps.

FIRE PROTECTION AND PREVENTION

Due to the high fire hazard and history of equipment-caused fires in Trinity County, construction contractors would be required to follow applicable regulations of Public Resource Code 4428-4442 during dry periods to minimize the potential for the initiation and spread of fires from the work site.

WATER POLLUTION PREVENTION

Reclamation would implement water pollution control measures that conform to applicable and appropriate permits. Reclamation would require the contractor to use extreme care to prevent construction dirt, debris, storm water run-off, and miscellaneous byproducts from entering the stream. Some key water pollution control measures that would be implemented by Reclamation are listed below:

- Every reasonable precaution would be exercised and BMPs would be implemented to protect the Trinity River from being polluted by fuels, oils, petroleum byproducts, and other harmful materials and shall conduct and schedule operations to avoid or minimize muddying and silting of the river. Care shall be exercised to preserve roadside vegetation beyond the limits of construction.
- Construction equipment would be cleaned of dirt and grease prior to any in-channel activities. All construction equipment would be inspected daily and maintained to ensure that fuel or lubricants do not contaminate the Trinity River. Spill containment kits would be onsite at all times and, where feasible, berms or other containment methods would be kept in place around the work areas when performing in-channel work.
- Water pollution control work is intended to provide prevention, control, and abatement of water pollution in the Trinity River, and would consist of constructing those facilities that may be shown on the plans, specified herein or in the special provisions, or directed by the Contracting Officer.
- Furrowing of riparian areas that have been compacted during construction activity is expected to minimize or stop delivery of storm water runoff to the river. As necessary, Reclamation would provide temporary water pollution control measures, including, but not limited to, dikes, basins, ditches, and straw and seed application, that may become necessary as a result of the contractor's operations.
- Before starting any work on the project, Reclamation would develop an agency-approved SWPPP to effectively control water pollution during construction of the project. The SWPPP would show the schedule for the erosion control work included in the contract and for all water pollution control measures Reclamation proposes to take in connection with construction of the project to minimize the effects of the operations on adjacent streams and other bodies of water. Reclamation would not perform any clearing and grubbing or earthwork on the project until the SWPPP has been accepted by responsible agencies.
- Oily or greasy substances originating from Reclamation's operations would not be allowed to enter, or be placed where they would later enter, a live stream, soil, or groundwater.

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APPENDIX B

MITIGATION MONITORING AND REPORTING PROGRAM FOR THE WHEEL GULCH REHABILITATION PROJECT

The following specific elements are part of the mitigation monitoring and reporting program that will be implemented for the Wheel Gulch rehabilitation project. These elements would be included as part of the Proposed Project to reduce impacts on resources to less than significant. Elements are reported for each resource that would have significant impacts under the Proposed Project in the absence of these mitigation monitoring and reporting measures. The numbers for each element correspond to the numbers called out in Chapter 4 of the Trinity River Master EIR.

Geology, Fluvial Geomorphology, Minerals, and Soils

4.3-2a Reclamation will implement the following measures during construction activities:

- Areas where ground disturbance will occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation.
- All vehicular construction traffic will be confined to the designated access routes and staging areas.
- Disturbance will be limited to the minimum necessary to complete all rehabilitation activities.
- All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.

4.3-2b Reclamation will prepare an erosion and sedimentation control plan (Storm Water Pollution Prevention Plan [SWPPP]). Measures for erosion control will be prioritized based on proximity to the river. Reclamation will provide the SWPPP for review by associated agencies (e.g., BLM, the Regional Water Board, NMFS, and CDFG) upon request. Reclamation's project manager will ensure the preparation and implementation of an erosion and sediment control plan prior to the start of construction.

The following measures will be used as a guide to develop this plan:

- Restore disturbed areas to pre-construction contours to the fullest extent feasible.
- Salvage, store, and use the highest quality soil for revegetation.
- Discourage noxious weed competition and control noxious weeds.
- Clear or remove roots from steep slopes immediately prior to scheduled construction.
- Leave drainage gaps in topsoil and spoil piles to accommodate surface water runoff.
- To the fullest extent possible, cease excavation activities during significantly wet or windy weather.
- Use bales, wattles, and/or silt fencing as appropriate.
- Before seeding disturbed soils, work the topsoil to reduce compaction caused by construction vehicle traffic.
- Rip feathered edges (and floodplain surfaces where appropriate) to approximately 18 inches deep. The furrowing of the river's edge will remove plant roots to allow mobilization of the bed, but will also intercept sediment before it reaches the waterway.
- Spoil sites will be located such that they do not drain directly into a surface water feature, if possible. If a spoil site will drain into a surface water feature, catch basins will be

constructed to intercept sediment before it reaches the feature. Spoil sites will be graded and vegetated to reduce the potential for erosion.

- Sediment control measures will be in place prior to the onset of the rainy season to ensure that surface water runoff does not occur. Project areas will be monitored and maintained in good working condition until disturbed areas have been seeded and mulched or revegetated in another fashion. If work activities take place during the rainy season, erosion control structures will be in place and operational at the end of each construction day.

Increased sedimentation rates in the Trinity River could degrade the quality and impair access to existing placer deposits via suction dredge operation. However, no suction dredging is currently allowed on the Trinity River or in California. Reclamation or its contractors will implement the same erosion control measures proposed for Impact 3.2-2. Implementation of these procedures should reduce the amount of disturbance at each site and thereby reduce the amount of sediment entering the Trinity River.

4.3-3a Reclamation will implement the following measures during construction:

- Areas where ground disturbance will occur will be identified in advance of construction and limited to only those areas that have been approved by Reclamation.
- All vehicular construction traffic will be confined to the designated access routes and staging areas.
- Disturbance will be limited to the minimum necessary to complete all rehabilitation activities.
- All supervisory construction personnel will be informed of environmental concerns, permit conditions, and final project specifications.

4.3-3b Reclamation will prepare a SWPPP as stipulated in Mitigation Measure 4.2-2b.

4.3-3c Reclamation will coordinate with private land owners and owners of active mining claims to develop site-specific measures that can be implemented to avoid or lessen project-related impacts to mineral resources associated with the Trinity River and its tributaries.

Water Quality

4.5-1a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2007), is summarized below.

- Turbidity levels will not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.
- Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity.
- Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels.

During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.

4.5-1b To ensure that turbidity levels do not exceed the thresholds described above (4.4-1a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels.

If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.

4.5-1c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.

4.5-1d Reclamation will prepare and implement a SWPPP that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.

- 4.5-1e** To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols:
- Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed as needed to reduce short-term erosion prior to the start of the rainy season.
 - Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out.
 - Disconnect and disperse flow paths, including roadside ditches, that might otherwise deliver fine sediment to stream channels or other water bodies.
 - Decomact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.
- 4.5-2a** Turbidity increases associated with project activities will not exceed the water quality objectives for turbidity in the Trinity River Basin (North Coast Regional Water Quality Control Board 2007).
- 4.5-2b** To ensure that turbidity levels do not exceed the threshold following construction, Reclamation will monitor turbidity and total suspended solids during and after representative rainfall events to determine the effect of the project on Trinity River water quality. At a minimum, field turbidity measurements will be collected whenever a visible increase in turbidity is observed.
- If increases in turbidity and total suspended solids are observed as a result of erosion from constructed features, field turbidity measurements will be collected 50 feet upstream of a point adjacent to the end of the feature and 500 feet downstream of the feature.
 - If the grab sample indicates that turbidity levels exceed the established thresholds identified in the Basin Plan, the Regional Water Board will be notified. The need to implement erosion control measures for turbidity that is expected to result from overland river flows (versus surface run-off) will be evaluated with Regional Water Board staff to determine if remediation measures are needed.
- 4.5-2c** To reduce the potential for the access routes to continually contribute soil materials to the Trinity River following project construction, thereby increasing turbidity and total suspended solids in the river, these routes will be stabilized or decommissioned upon completion of work in those areas consistent with the requirements outlined in Appendix A (Design Elements and Construction Criteria). Decommissioning is defined as removing those elements of a road that reroute hillslope drainage and present slope stability hazards.
- 4.5-3a** Reclamation will prepare and implement a spill prevention and containment plan in accordance with applicable federal and state requirements.
- 4.5-3b** Reclamation will ensure that any construction equipment that will come in contact with the Trinity River be inspected daily for leaks prior to entering the flowing channel. External oil, grease, and mud will be removed from equipment using steam cleaning. Untreated wash and rinse water will be adequately treated prior to discharge if that is the desired disposal option.

4.5-3c Reclamation will ensure that hazardous materials, including fuels, oils, and solvents, not be stored or transferred within 150 feet of the active Trinity River channel. Areas for fuel storage, refueling, and servicing will be located at least 150 feet from the active river channel or within an adequate secondary fueling containment area. Gas pumps and engines will be stored and maintained on impermeable barriers so that any leaking petroleum products are isolated from the ground. In addition, the construction contractor will be responsible for maintaining spill containment booms onsite at all times during construction operations and/or staging of equipment or fueling supplies. Fueling trucks will maintain a spill containment boom at all times.

Impact 3.5-5: The significance of impacts related to sediment, settleable materials, suspended materials, turbidity, and increased stormwater runoff and subsequent potential for erosion, as well as mitigation measures that will reduce the significance of these impacts, are addressed under Sections 3.5-1, 3.5-2, and 3.5-4. The significance of, and mitigation for, chemical constituents and toxicity impacts are addressed under Sections 3.5-4.

Fishery Resources

4.6-1a The proposed construction schedule avoids in-channel work during the period in which it could affect spawning spring- and fall-run chinook salmon, coho salmon, and steelhead or their embryos once in the gravel. As directed by the 2000 Biological Opinion (National Marine Fisheries Service 2000), Reclamation will ensure that all in-channel construction activities are conducted during late-summer, low-flow conditions (e.g., July 15-September 15).

4.6-1b Alluvial material used for coarse sediment additions will be composed of washed, spawning-sized gravels (3/8- to 5-inches diameter) from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter; will be free of contaminants, such as petroleum products; and will pass Caltrans cleanliness test #227 with a value of 85 or greater.

4.6-2a The water quality objective for turbidity levels in the Trinity River, as listed in the Basin Plan for the North Coast Region (North Coast Regional Water Quality Control Board 2007), is summarized below.

- Turbidity levels shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or waiver thereof.
- Due to the nature of the proposed restoration activities and the clarity of the Trinity River during low flow conditions, the Regional Water Board has determined that an allowable zone of turbidity dilution is appropriate and necessary in order for Trinity River restoration activities to be accomplished in a meaningful, timely, and cost-effective manner that fully protects beneficial uses without resulting in a violation of the water quality objective for turbidity.
- Project activities that occur in areas outside of the active river channel will not increase turbidity levels by more than 20 percent above naturally occurring background levels. During in-river construction activities and until the first extended period of post-construction high flow (i.e., flows of at least 6,000 cfs inundate the project areas and

floodplain for a minimum of 7 days) a zone of turbidity dilution within which higher percentages will be tolerated will be defined in discharge permits as the full width of the river channel within 500 linear feet downstream of any project activity that increases naturally occurring background levels, provided that all other required controls and appropriate BMPs for sediment and turbidity control are in place and downstream beneficial uses are also fully protected. When naturally occurring background levels are less than or equal to 20 NTUs, turbidity levels immediately downstream of the zone of turbidity dilution shall not exceed 20 NTUs. If naturally occurring background levels are greater than 20 NTUs, turbidity levels immediately downstream of the 500 linear foot zone of dilution shall not be increased by more than 20 percent above the naturally occurring background level.

4.6-2b To ensure that turbidity levels do not exceed the thresholds described above (4.6-2a) during in-river project construction activities, Reclamation shall monitor turbidity levels upstream within 50 feet of project activities (i.e., natural background) and 500 feet downstream of the in-river construction activities that could increase turbidity. At a minimum, field turbidity measurements shall be collected whenever a visible increase in turbidity is observed. Monitoring frequency shall be a minimum of every two hours during in-river work periods and when activities commence that are likely to increase turbidity levels above any previously monitored levels.

If grab sample results indicate that turbidity levels exceed 20 NTU at 500 feet downstream from construction activities, remedial actions will be implemented to reduce and maintain turbidity at or below 20 NTU immediately downstream of the 500 linear foot zone of dilution. Potential remedial actions include halting or slowing construction activities and implementation of additional BMPs until turbidity levels are at or below 20 NTU.

4.6-2c Fill gravels used on the streambeds, stream banks, and river crossings will be composed of washed, spawning-sized gravels from a local Trinity River Basin source. Gravel will be washed to remove any silts, sand, clay, and organic matter and will be free of contaminants such as petroleum products. Washed gravel will pass Caltrans cleanliness test #227 with a value of 85 or greater.

4.6-2d Reclamation will prepare and implement a SWPPP that describes BMPs for the project, including silt fences, sediment filters, and routine monitoring to verify effectiveness. Proper implementation of erosion and sediment controls will be adequate to minimize sediment inputs into the Trinity River until vegetation regrowth occurs. All required controls and BMPs, including sediment and erosion control devices, will be inspected daily during the construction period to ensure that the devices are properly functioning. Excavated and stored materials will be kept in upland activity areas with erosion control properly installed and maintained. Excavated and stored materials will be staged in stable upland activity areas. All applicable erosion control standards will be required during stockpiling of materials.

4.6-2e To minimize the potential for increases in turbidity and suspended sediments entering the Trinity River as a result of access routes (e.g., roads), Reclamation will implement the following protocols:

- Keep bare soil to the minimum required by designs. Erosion control devices/measures will be applied to areas where vegetation has been removed to reduce short-term erosion prior to the start of the rainy season.
- Keep runoff from bare soil areas well dispersed. Dispersing runoff keeps sediment on-site and prevents sediment delivery to streams. Direct any concentrated runoff from bare soil areas into natural buffers of vegetation or areas with more gentle slopes where sediment can settle out.
- Disconnect and disperse flow paths, including roadside ditches, that might otherwise deliver fine sediment to stream channels.
- Decompact or rip floodplain areas so that surfaces are permeable and no surface water runoff occurs.

4.6-3a Construction specifications will include the following measures to reduce potential impacts associated with accidental spills of pollutants (fuel, oil, grease, etc.) on vegetation and aquatic habitat resources within the project boundary:

- Equipment and materials will be stored away from wetland and surface water features.
- Vehicles and equipment used during construction will receive proper and timely maintenance to reduce the potential for mechanical breakdowns leading to a spill of materials. Maintenance and fueling will be conducted in an area at least 150 feet away from waters of the Trinity River or within an appropriate secondary fueling containment area. Gasoline engines and pumps operated on the floodplain will be isolated from the ground by an impermeable barrier.
- The contractor will develop and implement site-specific BMPs, a water pollution control plan, and emergency spill control plan. The contractor will be responsible for immediate containment and removal of any toxins released.

4.6-4a To avoid impacts to spawning and incubating salmonids, instream work will only occur between July 15 and September 15.

4.6-4b To avoid or minimize potential injury and mortality of fish during riverine activities (e.g., addition and grading of coarse sediment), equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area.

4.6-4d To avoid or minimize potential injury and mortality of fish during excavation and placement of fill materials in the active low-flow channel, equipment will be operated slowly and deliberately to alert and scare adult and juvenile salmonids away from the work area. Reclamation will ensure that before submerging an excavator bucket or laying gravel below the water surface, the excavator bucket will be operated to "tap" the surface of the water, or a person will wade ahead of fill placement equipment to scare fish away from the work area. To avoid impacts to mobile life stages of salmonids that may be present in the water column, the first layers of clean gravel that are being placed into the wetted channel will be added slowly and deliberately to allow fish to move from the work area.

4.6-4f Monitoring of the constructed inundation surfaces for salmon fry stranding will be performed by a qualified fishery biologist immediately after recession of flood flow events designated as a 1.5- year or less frequent event (i.e., $Q \geq 6,000$ cfs) for a period of 3 years following construction. These flows, and associated fry stranding surveys, will typically occur between January and May. If substantial stranding is observed, Reclamation will take

appropriate measures to return stranded fishes to river habitats and to subsequently modify the constructed surfaces prior to the next managed flow release to reduce the likelihood of future occurrences of fry stranding.

To maintain overall SRA habitat values in the project reach, the Proposed Project will be designed to minimize losses of riparian vegetation adjacent to the Trinity River channel, except where necessary to re-activate river access to the floodplain. Boundary markers will be installed along all riparian areas outside of delineated rehabilitation activity areas. These markers will prevent construction access so that impacts to riparian vegetation are minimized. To compensate for the loss of riparian vegetation in the project boundaries, Reclamation will implement the following measures:

- 4.6-5a** Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes necessary for the project to ensure that these features avoid and/or minimize to the fullest extent impacts to riparian habitats and wetland waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any construction activity within these features. Reclamation will inspect and maintain flagged areas on a regular basis throughout the construction phase.
- 4.6-5b** Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net-loss of riparian habitat and jurisdictional wetlands within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.
- 4.6-5c** Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be redelineated 5 years post-project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after project implementation and wetland delineation 5 years after implementation will provide Reclamation with needed data in a timely fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian and jurisdictional wetland habitat within rehabilitation site boundaries after 10 years.

Vegetation, Wildlife, and Wetlands

- 4.7-1a** Prior to the start of construction activities, Reclamation will retain a qualified biologist to identify potential construction access routes to ensure that these features avoid and/or minimize to the fullest extent impacts to jurisdictional waters. In addition, Reclamation will clearly identify, and flag in the field, biologically sensitive areas (e.g., jurisdictional waters and riparian habitat) to be protected, and will provide the contractor with specific instructions to avoid any

construction activity within these features. Reclamation will inspect and maintain marked areas on a regular basis throughout the construction phase.

4.7-1b Reclamation will continue to implement the Riparian Revegetation and Monitoring Plan during Proposed Project implementation. The plan acknowledges that the ultimate goals of the TRRP include enhancement and maintenance of functional riparian habitat and no net loss of riparian habitat and jurisdictional wetlands both within channel rehabilitation site boundaries and generally throughout the 40-mile reach of the Trinity River below the TRD.

4.7-1c Reclamation will initiate a 10-year mitigation monitoring program after the first growing season following project implementation. Monitoring and maintenance of planted vegetation will take place in the first several years after planting. After a period of 5 years, the need for additional riparian habitat and wetland enhancement will be evaluated in a written report. At that time, Reclamation, in consultation with the USACE, Regional Water Board, and CDFG, will determine whether there is a need to further enhance or create additional areas of riparian habitat or jurisdictional wetlands within the project boundary so that there will be no net loss of wetlands at the end of a 5 year period and no net loss of riparian habitat after a 10-year monitoring period. In addition, wetlands will be re-delineated 5 years after project implementation to ensure no net loss of wetland habitat. Riparian habitat reporting 5 years after planting and wetland delineation 5 years after project implementation will provide Reclamation with needed data in a timely fashion to take additional pro-active measures towards meeting the goals of no net loss of riparian habitat and jurisdictional wetlands within boundaries established for TRRP rehabilitation sites after 10 years.

4.7-4a Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation site to determine whether suitable nesting habitat for the little willow flycatcher is present. If suitable habitat is present, Mitigation Measure 4.6-4b will be implemented.

4.7-4b Grading and other construction activities will be scheduled to avoid the nesting season to the extent possible. The nesting season for this species in Trinity County extends from June 1 through July 31. If construction occurs outside of the breeding season, no further mitigation is necessary. If the breeding season cannot be completely avoided, Mitigation Measures 4.6-4d and 4.6-4f will be implemented.

4.7-4c A qualified biologist will conduct a minimum of one pre-construction survey for the little willow flycatcher within the rehabilitation site and a 250-foot buffer around the site. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The pre-construction survey will be used to ensure that no nests of this species within or immediately adjacent to the rehabilitation site will be disturbed during project implementation. If an active nest is found, CDFG will be contacted prior to the start of construction to determine the appropriate mitigation measures.

4.7-4d If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting substrate (e.g., shrubs and trees) that will be removed by the project will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.

4.7-5a If any construction in the Trinity River channel will occur prior to August 1 of any construction season, a pre-construction survey for the foothill yellow-legged frog larvae and/or eggs will be conducted by a qualified biologist. This survey will be conducted within the

construction boundary no more than 2 weeks prior to the start of in-stream construction activities. If larvae or eggs are detected, the biologist will relocate them to a suitable location outside of the construction boundary.

4.7-5b In the event that a foothill yellow-legged frog is observed within the construction boundary, the contractor will temporarily halt in-stream construction activities until the frog has been moved to a safe location with suitable habitat outside of the construction limits.

4.7-5c Mitigation measures identified in Section 3.5 (Water Quality) of this EA/IS for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for potential indirect impacts to dispersal habitat for the foothill yellow-legged frog due to sedimentation and accidental spills.

4.7-5d The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.

4.7-6a A minimum of one survey for western pond turtle nests will be conducted during the nesting season (generally late June-July) prior to construction. A qualified biologist will be retained by Reclamation to conduct the survey. If a western pond turtle nest is found, the biologist will flag the site and determine whether construction activities can avoid affecting the nest. If the nest cannot be avoided, the nest will be excavated by the biologist and reburied at a suitable location outside of the construction limits.

4.7-6b Prior to construction in open water habitat, a qualified biologist will trap and move western pond turtles out of the construction area to nearby suitable habitats.

4.7-6c During construction, in the event that a western pond turtle is observed within the construction limits, the contractor will temporarily halt construction activities until the turtle has been moved to a safe location within suitable habitat outside of the construction limits.

4.7-6d Mitigation measures presented in Section 4.5 (Water Quality) for addressing erosion and sedimentation and accidental spills will be fully implemented to mitigate for the potential indirect impacts to potential dispersal habitat due to sedimentation and accidental spills.

4.7-6e The mitigation measure associated with the disturbance to riparian habitat (Mitigation Measures 4.7-1a-c) will be fully implemented.

4.7-7a Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation site to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-7b will be implemented.

4.7-7b Grading and other construction activities will be scheduled to avoid the nesting season for these species to the extent possible. The nesting season for these species in Trinity County extends from March 15 through July 31. If construction occurs outside the breeding season, no further mitigation is necessary. If construction during the breeding season cannot be completely avoided, Mitigation Measures 4.7-7c and 4.7-7d will be implemented.

4.7-7c A qualified biologist will conduct a minimum of one preconstruction survey for these species within the rehabilitation site and a 250-foot buffer around the site. The survey will be conducted no more than 15 days prior to the initiation of construction in any given area. The preconstruction survey will be used to ensure that no nests of these species within or immediately adjacent to the rehabilitation site will be disturbed during project implementation.

If an active nest is found, a qualified biologist will determine the extent of a construction-free buffer zone to be established around the nest.

4.7-7d If vegetation is to be removed by the project and all necessary approvals have been obtained, potential nesting habitat (e.g., shrubs and trees) that will be removed by the project will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.

4.7-8a Prior to the start of construction, a qualified biologist will conduct a survey of the rehabilitation site to determine whether suitable nesting habitat for the species is present. If suitable habitat is present, Mitigation Measure 4.7-8b will be implemented.

4.7-8b Construction will be scheduled to avoid the nesting season for bald eagles and northern goshawks to the extent feasible. The nesting season for most raptors in Trinity County extends from February 15 through July 31. Thus, if construction can be scheduled to occur between August 1 and February 14, the nesting season will be avoided and no impacts to nesting bald eagles and northern goshawks will be expected. If it is not possible to schedule construction during this time, the following mitigation measures will be implemented.

4.7-8c Pre-construction surveys for nesting northern goshawks will be conducted by a qualified biologist to ensure that no nests will be disturbed during project implementation. These surveys will be conducted no more than 14 days prior to the initiation of construction activities. During this survey, the biologist will inspect all trees immediately adjacent to the impact areas for bald eagle and northern goshawk nests. If an active nest is found within 500 feet of the construction area to be disturbed by these activities, the biologist, in consultation with the CDFG, will determine the extent of a construction-free buffer zone to be established around the nest.

4.7-8d If vegetation is to be removed as part of the project and all necessary approvals have been obtained, potential nesting habitat (i.e., trees) that will be removed by the project will be removed before the onset of the nesting season, if feasible. This will help preclude nesting and substantially decrease the likelihood of direct impacts.

4.7-9a A pre-construction survey for roosting bats and ring-tailed cats will be conducted prior to the start of construction activities. The survey will be conducted by a qualified biologist. No activities that will result in disturbance to active roosts of special-status bats or dens of ring-tailed cats will proceed prior to completion of the surveys. If no active roosts or dens are found, no further action is needed. Because bats are known to abandon young when disturbed, if a maternity roost is located, a qualified bat biologist will determine the extent of a construction-free zone to be implemented around the roost. If a bat maternity roost or hibernaculum is present, or a ring-tailed cat den is present, Mitigation Measures 4.7-9b and/or 4.7-9c will be implemented. CDFG will also be notified of any active bat nurseries within the disturbance zones.

4.7-9b If an active maternity roost or hibernaculum is found, the project will be redesigned to avoid the loss of the tree or structure occupied by the roost, if feasible. If the project cannot be redesigned to avoid removal of the structure, demolition of that structure will commence before bat maternity colonies form (i.e., prior to March 1) or after young are volant (flying) (i.e., after July 31). The disturbance-free buffer zones described above will be observed during the bat maternity roost season (March 1–July 31). If a non-breeding bat hibernaculum is found in a tree

or structure to be razed, the individuals will be safely evicted under the direction of a qualified bat biologist, by opening the roosting area to allow air to flow through the cavity. Demolition will then follow no sooner than the following day (i.e., there will be no less than one night between initial disturbance for air flow and the demolition). This action will allow bats to leave during dark hours, thus increasing their chance of finding new roosts with a minimum of potential predation during daylight. Trees with roosts that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow bats to escape during the darker hours.

- 4.7-9c** If an active ring-tailed cat nest is found, the project will be redesigned to avoid the loss of the tree occupied by the nest if feasible. If the project cannot be redesigned to avoid removal of the occupied tree, demolition of that tree will commence outside of the breeding season (February 1 to August 30). If a non-breeding den is found in a tree scheduled to be removed, the individuals will be safely evicted under the direction of a qualified biologist. Trees with dens that need to be removed will first be disturbed at dusk, just prior to removal that same evening, to allow ring-tailed cats to escape during the darker hours.

Mitigation Measures 4.7-4a-c will reduce impacts to the little willow flycatcher to a less than significant level. Mitigation Measures 4.7-5a-d will reduce the impacts to the foothill yellow-legged frog to a less than significant level. Mitigation Measures 4.7-6a-d will reduce the impacts to the western pond turtle to a less-than-significant level. Mitigation Measures 4.7-8a-c will reduce the impacts to the northern goshawk to a less than significant level, and Mitigation Measures 4.7-9a-b will reduce the impacts to special-status bat species to a less than significant level.

- 4.7-13a** When using imported erosion control materials (as opposed to rock and dirt berms), use only certified weed-free materials, mulch, and seed.
- 4.7-13b** Preclude the use of rice straw in riparian areas.
- 4.7-13c** Limit any import or export of fill to materials to those that are known to be weed free.
- 4.7-13d** Ensure all construction equipment is thoroughly washed prior to entering the worksite. Equipment will be inspected to ensure that it is free of plant parts as well as soils, mud, or other debris that may carry weed seeds.
- 4.7-13e** Use a mix of native grasses, forbs, and non-persistent non-native species for seeding disturbed areas that are subject to infestation by non-native and invasive plant species. Where appropriate, a heavy application of mulch will be used to discourage introduction of these species. Use of planting plugs of native grass species may also be used to accelerate occupation of disturbed sites and increase the likelihood of reestablishing a self-sustaining population of native plant species.
- 4.7-13f** Within the first 3 to 5 years post-project, if it is determined that the project has caused non-native invasive vegetation to out-compete desired planted or native colonizing riparian vegetation, opportunities to control these non-native species will be considered. When implementing weed control techniques, the approach will consider using all available control methods known for a weed species.

Recreation

- 4.8-3** Same as 4.5-1a-e.

Cultural Resources

- 4.10-2a** Prior to initiation of construction or ground-disturbing activities, all construction workers will be alerted to the possibility of discovering cultural resources. This includes prehistoric and/or historic resources. Personnel will be instructed that upon discovery of buried cultural resources, work within 50 feet of the find will be halted and Reclamation's designated archaeologist will be consulted. Once the find has been identified, Reclamation will be responsible for developing a treatment plan for the cultural resource including an assessment of its historic properties and methods for avoiding any adverse effects, pursuant to the PA and in compliance with the NHPA.
- 4.10-2b** If human remains are encountered during construction on non-federal lands, work in that area will be halted and the Trinity County Coroner's Office will be immediately contacted. If the remains are determined to be of Native American origin, the Native American Heritage Commission (NAHC) will be notified within 24 hours of determination, as required by PRC, Section 5097. The NAHC will notify designated Most Likely Descendants, who will provide recommendations for the treatment of the remains within 24 hours. The NAHC will mediate any disputes regarding treatment of remains. If Native American human remains and associated items are discovered on federal lands, they will be treated according to provisions set forth in the Native American Protection and Repatriation Act (25 USC 3001) as well as Reclamation's Directives and Standards LND 02-01. If the find is determined to be a historical resource or a unique archaeological resource, as defined by CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or other appropriate mitigation will be made available. Work may continue on other parts of the project while mitigation for historical or unique archaeological resources takes place.

Air Quality

- 4.11-1a** Reclamation will implement a dust control program to limit fugitive dust and particulate matter emissions. The dust control program will include the following elements as appropriate:
- Inactive construction areas will be watered as needed to ensure dust control.
 - Pursuant to the California Vehicle Code (Section 23114), all trucks hauling soil or other loose material to and from the construction site will be covered or will maintain adequate freeboard to ensure retention of materials within the truck's bed (e.g., ensure 1-2 feet vertical distance between top of load and the trailer).
 - Excavation activities and other soil-disturbing activities will be conducted in phases to reduce the amount of bare soil exposed at any one time. Mulching with weed-free materials will be used to minimize soil erosion, as described in Section 3.3, Geology, Fluvial Geomorphology, and Soils, and Section 3.5, Water Quality.
 - Watering (using equipment and/or manually) will be conducted on all stockpiles, dirt/gravel roads, and exposed or disturbed soil surfaces, as necessary, to reduce airborne dust.
 - All paved access roads, parking areas, and staging areas will be swept (with water sweepers), as required by Reclamation.

- Paved roads will be swept (with water sweepers) if visible soil material is carried onto adjacent private and public roads, as required by Reclamation.
- All ground-disturbing activities with the potential to generate dust will be suspended when winds exceed 20 mph, as directed by the NCUAQMD.
- Reclamation or its contractor will designate a person to monitor dust control and to order increased watering as necessary to prevent transport of dust offsite. This person will also respond to citizen complaints.

4.11-2a Reclamation will comply with NCUAQMD Rule 104 (4.0) Particulate Matter. This compliance could occur by using portable internal combustion engines registered and certified under the state portable equipment regulation (Health & Safety Code 41750 through 41755).

4.11-3a Vegetative piles to be burned will consist only of dried vegetative materials. Burn piles will be no larger than 10 feet in diameter. Field personnel will be on site during all hours of burning, and materials necessary to extinguish fires will be available at all times.

4.11-3b In general, all requirements of a NCUAQMD “NON-Standard” burn permit will be met for burning. Burn management planning will include but not be limited to the following:

- Ensure that burning occurs only on approved burn days as defined by the NCUAQMD (determined by calling 1-866-BURN-DAY).
- Burning will only occur during suitable conditions to ensure control of ignited fires. For instance, water to wet the litter and duff layer and penetrate the mineral soil layer to 1/4 inch or more will be present, wind speeds will be low (<10 mph), and temperature will be low (<80 °F).
- Piles will be covered with a 5-foot x 5-foot sheet of 4-mil polyethylene plastic to promote drying of the slash. At least 3/4 of each pile surface will be covered and the plastic anchored to preserve a dry ignition point. Dry fuel conditions will minimize smoke emissions.
- Slash piles will not be constructed on logs, stumps, or talus slopes within 25 feet of wildlife trees with nest structures, in roadways, or in drainage ditches. Piles will not be placed within 10 feet of trees intended to be saved (reserved trees) or within 25 feet of a unit boundary.

4.11-3c Reclamation will notify the public each day that burning is to occur. Signs or personnel will notify residents and traffic on nearby access routes.

4.11-5a Construction activity occurring within 300 feet of elementary schools will be limited to the period when school is not in session.

4.11-5b Construction activity occurring within 300 feet of residences will be limited to Monday through Saturday, from the hours of 9 a.m. to 5 p.m.

4.11-5c Reclamation will notify residences within 300 feet of the site and project activity and elementary schools will be notified of construction activity located near the school prior to site construction activities.

4.11-5d Reclamation will ensure that a notice is posted at/adjacent to the rehabilitation site, which contains a phone number for the public to contact for concerns related to air quality.

Aesthetics

In order to minimize impacts to visual resources resulting from the removal of vegetation in the project area, mitigation measures 4.7-1a-c, as described in Section 4.7 (Vegetation, Wildlife, and Wetlands), will be implemented where applicable.

Visual impacts related to water quality (e.g., the potential for increased turbidity to adversely impact the aesthetic quality of the river) will be mitigated through the implementation of mitigation measures 4.8-3a-f, as described in Section 3.8 (Recreation). These measures will be implemented where applicable.

Noise

4.14-1a Construction activities near residential areas will be scheduled between 7:00 a.m. and 7:00 p.m., Monday through Saturday. No construction activities will be scheduled for Sundays or other hours and days established by the local jurisdiction (i.e., Trinity County). The contractor may submit a request for variances in construction activity hours, as needed.

4.14-1b Reclamation will require that all construction equipment be equipped with manufacturer's specified noise muffling devices.

4.14-1c Reclamation will require placement of all stationary noise-generating equipment as far away as feasibly possible from sensitive noise receptors or in an orientation minimizing noise impacts (e.g., behind existing barriers, storage piles, unused equipment).

Public Services and Utilities/Energy

4.15-3a Reclamation will require that staging and construction work, including temporary road or bridge closures occurs in a manner that allows for access by emergency service providers.

4.15-3b Reclamation will provide 72-hour notice to the local emergency providers and affected users prior to the start of temporary closures.

4.15-3c Reclamation will coordinate road closures occurring during the school year (mid-August through mid-June) with the appropriate school districts to avoid disruption of school attendance and student access to bus service.

Transportation/Traffic Circulation

4.16-2a Reclamation will post signs during gravel haul activities notifying travelers of trucks entering the roadway. Reclamation will ensure that the gravel trucks maintain a speed limit of 15 mph on residential roads and private roads and operate only between the hours of 7 a.m. and 7 p.m., Monday through Saturday.

4.16-4a Reclamation will perform a pre-construction survey of local federal and state roads to determine the existing roadway conditions of the construction access routes, and will consult with the relevant agencies/private parties about road conditions prior to construction activity and post construction activity. An agreement will be entered into prior to construction that will detail the pre-construction conditions and post-construction requirements for potential roadway rehabilitation.

4.16-5a Reclamation will prepare and implement a traffic control plan that will include provision and maintenance of temporary access through the construction zone, reduction in speed limits through the construction zone, signage and appropriate traffic control devices, illumination during hours of darkness or limited visibility, use of safety clothing/vests to ensure visibility of construction workers by motorists, and fencing as appropriate to separate bicyclists, pedestrians, and equestrians from construction activities. Reclamation will obtain an encroachment permit from Caltrans to work within the SR-299 easement. This permit will require traffic control and signage to meet California state standards.